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#### ABSTRACT

This curriculum guide, which is intended for middle school agriculture teachers in Virginia, outlines a three-course competency-based agriscience program to give middle school students an understanding of basic science concepts through agriculture. The guide begins with a program description that includes descriptions of the program's three courses for students in grades 6, 7, and 8. The courses cover the following topics: agriscience (agriculture, plant and animal life cycles, communication with others, agricultural mechanics technology, ecology and conservation, career opportunities in agriculture); agriscience exploration (importance of agriculture/agriscience, conserving natural resources, research in agriculture, plant science, animal science, basic laboratory skills, personal development); and agriscience and technology (new technologies in agriculture/agriscience, international agriculture, agricultural businesses, microcomputers in agriculture, supervised agricultural experiences, hand tools and agricultural power equipment, leadership skills, and experimentation in agriculture). Suggested duty areas and tasks/competencies for each course are listed. Presented next (and constituting approximately 60% of the guide) are detailed matrices in which language arts, mathematics, and science standards of learning are cross-referenced to the competencies/tasks covered in each of the courses and their suggested duty areas. Concluding the guide is a 26-item list of suggested agriscience education resources. (MN)

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# FOR THE MIDDLE SCHOOL



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# AGRISCIENCE EDUCATION FOR THE MIDDLE SCHOOL

Developed by

**Agricultural Education Service** 

Produced by

Virginia Vocational Curriculum and Resource Center

Vocational and Adult Education Virginia Department of Education

1990



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#### INTRODUCTION

The Agriscience Education curriculum augments the Virginia middle school philosophy by providing students with an understanding of basic science concepts through agriculture. These basic concepts are taught using the medium of the food and fiber system of agriculture. The agriculture teacher is able to capture the students' interest by bringing living aspects of science to the classroom for experimentation and observation.

As teachers of Agricultural Education cooperate with teachers of the middle school subject areas in developing activities and projects, students will more clearly understand the application of school to real life. Furthermore, teachers and students will obtain increased satisfaction and enjoyment from education.

This curriculum guide is only a foundation upon which individual teachers can build personal courses of study. Teachers are encouraged to meld their own material and instructional activities with the suggestions in this guide.



# PROGRAM: AGRISCIENCE EDUCATION

This program is designed to introduce Description:

agriscience to all middle school students. Through the program, students become aware of, explore, and apply science to agriculture, thus developing an understanding of the nature of science and its application in the food

and fiber system.

01.999 CIP Code:

Suggested Grade Level: 6, 7, 8

Introduction to Agriscience 8002 **Approved Courses:** 

Agriscience Exploration 8003 Agriscience and Technology 8004

Introduction to Agriscience 8002 Course: 18 weeks or less (6th grade)

This course is designed to develop in middle school students an awareness of the relationships betweeen agriculture and science. Major concepts covered in the course include an awareness of agriculture, the world of work, agribusiness careers, human relations, and scientific principles applied in agriculture. The course is offered on a semester or less basis for sixth-grade students.

Agriscience Exploration 8003 Course: 18 weeks (7th grade)

This course is designed to assist students in exploring science as it relates to agriculture. Through well planned instructional activities, students have the opportunity to develop an understanding of human relations, communication, the importance of agriculture to the economy, and key scientific terms related to the field of agriculture. The course is offered on a semester basis for seventh-grade students.

Agriscience and Technology 8004 Course: 18 or 36 weeks (8th grade)

This course is designed to allow students to apply scientific principles to the field of agriculture in a laboratory setting. The students are introduced to new technology and its impact on agriculture. An introduction to international agriculture and new strategies in marketing agricultural products are also included. The course is offered for a semester or for a full year for eighth-grade students.



# INTRODUCTION TO AGRISCIENCE 8002

# GRADE 6 (18 weeks or less)

# SUGGESTED DUTY AREAS

Duty Area 0	Becoming Oriented to Agriscience
Duty Area 1	Describing Agriculture
Duty Area 2	Introducing Plant and Animal Life Cycles
Duty Area 3	Communicating with Others
Duty Area 4	Introducing Agricultural Mechanics Technology
Duty Area 5	Introducing Ecology and Conservation
Duty Area 6	Identifying Career Opportunities in Agriculture



# DUTY AREA 0 BECOMING ORIENTED TO AGRISCIENCE

# COMPETENCY/TASK

- 0.1 Explore ideas associated with agriculture.
- 0.2 Identify class rules and procedures.

- 1. Complete a student survey.
- 2. Review class rules.
- 3. Tour the agricultural education facility.



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## DUTY AREA 1

# DESCRIBING AGRICULTURE

#### COMPETENCY/TASK

- 1.1 Define agriculture/agriscience.
- 1.2 Discuss the impact of agriculture on the world economy.
- 1.3 Identify the key factors that have shaped the agricultural industry in the United States.
- 1.4 Describe the interdependency of agriculture and other segments of society.
- 1.5 Identify current research and development activities in agriculture.

- 1. List ten agricultural crops in Virginia.
- 2. Trace the flow of an agricultural product from the farm to the table.
- 3. List ten agribusinesses found in Virginia.
- 4. Prepare and present a short report on the development of new technologies in agriculture.
- 5. Tour a local farm to observe production agriculture.
- 6. Tour a local agribusiness to observe the business of agriculture.
- 7. Tour a local farm or agribusiness to observe new technology.



# INTRODUCING PLANT AND ANIMAL LIFE CYCLES

#### COMPETENCY/TASK

- 2.1 Identify and explain functions of plant systems.
- 2.2 Identify basic requirements for plant growth and development.
- 2.3 Identify plants of economic importance to the community.
- 2.4 Identify basic requirements for animal growth and development.
- 2.5 Identify careers in plant science.
- 2.6 Identify careers in animal science.

- 1. Label the parts of a plant. Explain the purpose of each part.
- 2. Germinate seeds.
- 3. Tour a local farm and agribusiness.
- 4. Transplant a plant.
- 5. Tour a greenhouse.
- 6. Make a bulletin board display showing major parts of a plant.
- 7. Write a letter to a person new to plant production, and explain the importance of photosynthesis.



# COMMUNICATING WITH OTHERS

#### COMPETENCY/TASK

- 3.1 Discuss the importance of effective communication.
- 3.2 Participate in a group discussion.
- 3.3 Communicate on the telephone.
- 3.4 Communicate through letters.
- 3.5 Communicate through newspapers, radio, and television releases.

- 1. Organize and present a short speech.
- 2. Demonstrate proper telephone procedures.
- 3. Tour a local radio or television station.
- 4. Write and submit a news article for a local newspaper.
- 5. Write a letter applying for a job in an agribusiness.



# INTRODUCING AGRICULTURAL MECHANICS TECHNOLOGY

# **COMPETENCY/TASK**

- 4.1 Determine the importance of agricultural mechanics technology.
- 4.2 Identify basic laboratory safety procedures.
- 4.3 Describe new agricultural engineering technologies.
- 4.4 Identify and use basic hand tools for woodworking.

- 1. Develop a list of safety rules for the laboratory.
- 2. Identify hand tools for woodworking.
- 3. Construct a simple woodworking project.
- 4. Demonstrate the proper use of one hand tool.



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#### **DUTY AREA 5**

#### INTRODUCING ECOLOGY AND CONSERVATION

#### **COMPETENCY/TASK**

- 5.1 Explain how organisms and the environment work together.
- 5.2 Identify conservation measures.
- 5.3 Identify the various types of natural resources.
- 5.4 Identify ecology and conservation concerns in the community.
- 5.5 Identify clean water needs of society.
- 5.6 Explain methods of conserving water.
- 5.7 Discuss home water conservation techniques.
- 5.8 Describe how agriculture and the environment are interrelated.

- 1. Apply conservation practices to an area around the school or in the community.
- 2. Identify ecology/conservation organizations in the community.
- 3. List the occupational titles for ecology/conservation occupations in the community.
- 4. Test a water sample.
- 5. Tour the water treatment plant in the community.
- 6. Interview a local soil conservationist; report to class information learned from the interview.
- 7. Construct a soil profile.



# IDENTIFYING CAREER OPPORTUNITIES IN AGRICULTURE

#### **COMPETENCY/TASK**

- 6.1 Identify full-time career opportunities in agriculture in Virginia.
- 6.2 Identify part-time career opportunities in agriculture in Virginia.
- 6.3 Explain career opportunities in agribusiness.
- 6.4 Determine the educational requirements for certain agricultural occupations.

- 1. Invite guest speaker to the class.
- 2. Develop a list of local agricultural opportunities.
- 3. Visit a local agribusiness to observe operations.
- 4. Visit a local farm to observe farming practices.
- 5. Write a one-page description of a selected agricultural occupation.
- 6. Visit a local agricultural marketing operation.



# AGRISCIENCE EXPLORATION 8003

# GRADE 7 (18 weeks)

# SUGGESTED DUTY AREAS

Duty Area 0	Becoming Oriented to Agriscience Exploration
Duty Area 1	Recognizing the Importance of Agriculture/Agriscience
Duty Area 2	Conserving Natural Resources
Duty Area 3	Exploring Research in Agriculture
Duty Area 4	Exploring Plant Science
Duty Area 5	Exploring Animal Science
Duty Area 6	Introducing Basic Laboratory Skills
Duty Area 7	Encouraging Personal Development



# BECOMING ORIENTED TO AGRISCIENCE EXPLORATION

# COMPETENCY/TASK

- 0.1 Explore ideas associated with agriculture.
- 0.2 Identify class rules and procedures.

- 1. Complete student survey.
- 2. Review class rules.
- 3. Tour agricultural education facilities.



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#### **DUTY AREA 1**

# RECOGNIZING THE IMPORTANCE OF AGRICULTURE/AGRISCIENCE

#### **COMPETENCY/TASK**

- 1.1 Explain the importance of agriculture to Virginia, the United States, and the world.
- 1.2 Describe the relationship of agriculture to other segments of society.

- 1. Identify agricultural statistics for Virignia.
- 2. List ten agricultural commodities produced in Virginia.
- 3. List ten agribusinesses located in Virginia.
- 4. List ten jobs in agriculture/agribusiness in the community.



# CONSERVING NATURAL RESOURCES

#### COMPETENCY/TASK

- 2.1 Identify kinds of soil erosion.
- 2.2 Explain factors affecting soil erosion.
- 2.3 Explain the importance of conserving soils.
- 2.4 Discuss soil erosion control measures.
- 2.5 Explain soil and water conservation measures.
- 2.6 Review agricultural policies concerning air quality.
- 2.7 Give examples of how the air pollution control program works.
- 2.8 Explain the relationship of trees and wildlife.
- 2.9 Identify careers in soil and water conservation.

- 1. Invite a local soil conservationist to speak to the class.
- 2. Implement a conservation project.
- 3. Identify ground water sources in the community (wells, springs, etc.).
- 4. Take samples of water from a well and test.
- 5. Take a soil sample.
- 6. Design a project that demonstrates the effect of slope erosion.
- 7. Make a pie chart that illustrates the components of air.
- 8. Construct a model watershed.
- 9. Design a chart showing land use for the various land classifications.



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#### **DUTY AREA 3**

# EXPLORING RESEARCH IN AGRICULTURE

#### COMPETENCY/TASK

- 3.1 Explain the importance of agricultural research.
- 3.2 Identify agricultural research in animal science.
- 3.3 Identify agricultural research in plant science.
- 3.4 Identify research in agricultural engineering technology.
- 3.5 Explore career opportunities in agricultural research.

# **Application Examples**

- 1. Conduct a simple research project.
  - Example:

Conduct a germination experiment with variables of moisture and temperature.

- 2. Tour an agricultural experiment station.
- 3. Utilize news media presentations on new technologies in agriculture (available from various commercial agriculture organizations).
- 4. Prepare and present an oral report on one recent agricultural research project.
- 5. Discuss the issues of pesticide residues on food in the United States.
- 6. Research a crop grown in your area. Discuss the major pests, and recommend practices to control these pests.



#### EXPLORING PLANT SCIENCE

#### COMPETENCY/TASK

- 4.1 Determine economic importance of agricultural crops.
- 4.2 Describe the photosynthesis process of plants.
- 4.3 Identify and explain methods of plant reproduction.
- 4.4 Demonstrate proper watering and fertilization of plants.
- 4.5 Identify and label plants.
- 4.6 Identify methods of planting or transplanting.
- 4.7 Explain the use of hydroponics in growing plants.
- 4.8 Discuss new technology in plant science.
- 4.9 Explain career opportunities in plant science.

- 1. Grow plants using hydroponics.
- 2. Propagate plants by stem cutting.
- 3. Germinate seeds.
- 4. Tour a local greenhouse to observe plant growth.
- 5. Identify ten plants grown locally.
- 6. Schedule plants to be grown in greenhouse or outdoor laboratory.
- 7. Construct a bulletin board display showing the cross section of a leaf; label the veins, cells, and leaf parts.
- 8. Conduct a plant and seed identification contest using agricultural grains, vegetable seed, and house plants.
- 9. Conduct a basic research project in the area of plant science.
- 10. Demonstrate plant tissue culture testing.
- 11. Evaluate a class of plants.
- 12. Identify Virginia forest trees.



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#### **DUTY AREA 5**

# **EXPLORING ANIMAL SCIENCE**

#### COMPETENCY/TASK

- 5.1 Determine the importance of animals to agriculture.
- 5.2 Explain the importance of animal evaluation.
- 5.3 Identify key scientific terms used in the animal industry.
- 5.4 Explore the meat animal industry.
- 5.5 Explore the pleasure and companion animal industry.
- 5.6 Discuss new technologies in animal science.
- 5.7 Discuss ethical concerns related to animal welfare.
- 5.8 Explore career opportunities in animal science.

- 1. Tour local farm to observe livestock common to area.
- 2. Tour local veterinarian or pet shop to observe small animals.
- 3. Evaluate a class of animals.
- 4. Invite local animal producers or a veterinarian to speak to class.
- 5. Conduct a livestock or small animal project.
- 6. Tour an agribusiness that serves the animal industry.
- 7. Conduct an animal identification quiz as a class project.
- 8. Conduct a class survey of the breeds of animals owned by students and their families.
- 9. Invite a person from the local SPCA to discuss animal care.
- 10. Identify animal products.



# INTRODUCING BASIC LABORATORY SKILLS

## **COMPETENCY/TASK**

- 6.1 Apply safety practices.
- 6.2 Identify types of metal.
- 6.3 Perform metal fabrication practices.
- 6.4 Read and interpret simple plans.
- 6.5 Identify and use basic hand tools for woodworking.
- 6.6 Maintain hand tools.
- 6.7 Select and use measuring devices.
- 6.8 Select and use wood fasteners.
- 6.9 Finish and preserve wood.

- 1. Demonstrate the proper use of a selected hand tool.
- 2. Develop a list of safety rules for the laboratory.
- 3. Identify hand tools used for woodworking.
- 4. Construct a simple woodworking project.
- 5. Sketch a simple woodworking project.
- 6. Identify and use wood fasteners.
- 7. Finish a wood project.
- 8. Perform the spark test on metal.
- 9. Demonstrate a metal fabrication skill.



# ENCOURAGING PERSONAL DEVELOPMENT

# COMPETENCY/TASK

- 7.1 Identify effective leadership traits.
- 7.2 Identify personal development needs.
- 7.3 Develop oral communication skills.
- 7.4 Develop written communication skills.
- 7.5 Develop an understanding of FFA.
- 7.6 Develop opportunities for leadership.
- 7.7 Develop social skills.

# **Application Examples**

- 1. Participate in group discussions.
- 2. Participate in at least one FFA leadership activity.
- 3. Serve on one committee.
- 4. Observe a meeting of a local county organization to observe leadership skills.
- 5. Identify community leaders.
- 6. Prepare and present a three-minute talk on an agriscience topic.
- 7. Prepare a written report discussing ways you exercise leadership in your family, school, and community.
- 8. Conduct a local social activity.

Examples:

Cook-out

Banquet



# AGRISCIENCE AND TECHNOLOGY 8004 GRADE 8 (18 or 36 weeks)

# SUGGESTED DUTY AREAS

Duty Area 0	Becoming Oriented to Agriscience Technology
Duty Area 1	Identifying New Technologies in Agriculture/Agriscience
Duty Area 2	Understanding International Agriculture
Duty Area 3	Understanding Agricultural Businesses
Duty Area 4	Using Microcomputers in Agriculture
Duty Area 5	Introducing Supervised Agricultural Experiences
Duty Area 6	Using Hand Tools and Agricultural Power Euqipment
Duty Area 7	Developing Leadership Skills
Duty Area 8	Experimenting in Agriculture



# BECOMING ORIENTED TO AGRISCIENCE TECHNOLOGY

# COMPETENCY/TASK

- 0.1 Identify Agricultural Education concepts.
- 0.2 Identify class rules and procedures.

- 1. Complete student survey.
- 2. Review class rules.
- 3. Tour agricultural education facilities.



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#### **DUTY AREA 1**

# IDENTIFYING NEW TECHNOLOGIES IN AGRICULTURE/AGRISCIENCE

#### COMPETENCY/TASK

- 1.1 Examine the application of computers to agricultural management.
- 1.2 Explore new technologies in animal science.
- 1.3 Explore new technologies in plant science.
- 1.4 Explore new technologies in agricultural engineering.
- 1.5 Explore new technologies in environmental areas.
- 1.6 Explore new strategies in agricultural marketing.

# **Application Examples**

- 1. Use the computer to gather information.
- 2. Use the computer to demonstrate landscape design.
- 3. Visit an agricultural research station to observe new technologies in plant science.
- 4. List ten new technologies that have been introduced in agriculture during the past five years.
- 5. Present a class report on new technologies in one of the following areas:

Animal Science
Plant Science
Environmental Areas
Agricultural Marketing
Agricultural Engineering.

- 6. Develop a list of agriscience jobs that involve computer applications.
- 7. Design, construct, and test a model pole barn structure for load capacity.
- 8. Demonstrate hydroponic production of vegetables.
- 9. Visit an aquaculture operation.
- 10. Discuss animal genetics.



# UNDERSTANDING INTERNATIONAL AGRICULTURE

#### COMPETENCY/TASK

- 2.1 Define exports.
- 2.2 Define imports.
- 2.3 Define tariffs.
- 2.4 Explain the relationship of international trade to Virginia agriculture.
- 2.5 Identify factors that affect trade agreements.
- 2.6 Explore careers in international agriculture.

- 1. List four major U.S. agriculture exports.
- 2. List the major countries that import agricultural products from the U.S.
- 3. List four major Virginia agricultural exports.
- 4. List four agricultural commodities that are imported from other countries.
- 5. Tour a local grocery store to identify five domestic food items and five imported food items.
- 6. Compare prices of common domestic agricultural food items with foreign produced items of the same type.
- 7. Compare percent of income spent on food in the United States vs. other countries.
- 8. Discuss cultural differences in different countries.
- 9. Indicate on a map countries that import various United States agricultural products.



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#### **DUTY AREA 3**

# UNDERSTANDING AGRICULTURAL BUSINESSES

#### COMPETENCY/TASK

- 3.1 Identify the role of agribusiness in agriculture.
- 3.2 Discuss free enterprise and the economy.
- 3.3 Define entrepreneur.
- 3.4 Recognize personal potential as an entrepreneur.
- 3.5 Identify career opportunities in agribusiness.
- 3.6. Describe the role and function of an agribusiness manager.

- 1. Identify agricultural service occupations in the community.
- 2. Identify agricultural supply occupations in the community.
- 3. Tour local agribusiness in the community.
- 4. Discuss the nature of entrepreneurship.
- 5. Invite a local entrepreneur to talk to class about establishing a small business.
- 6. Invite a banker to discuss the procedure used in applying for a loan.
- 7. Develop a bulletin board display illustrating entrepreneurship opportunities in agribusiness.
- 8. Participate in at least one sales project.
- 9. Simulate an agricultural business to include designing, producing, and marketing a commodity.



# USING MICROCOMPUTERS IN AGRICULTURE

# **COMPETENCY/TASK**

- 4.1 Identify components of a computer system.
- 4.2 Define computer terms.
- 4.3 Explain the proper use of diskettes.
- 4.4 Use word processing software.
- 4.5 Identify the uses of computers in agriculture.

- 1. Write a short report using the word processor.
- 2. Format a diskette.
- 3. Power up a computer and access a computer program.
- 4. Participate in a FFA computer contest.
- 5. Develop a list of agriscience jobs that involve the use of computers.



#### INTRODUCING SUPERVISED AGRICULTURAL EXPERIENCES

#### **COMPETENCY/TASK**

- 5.1 Define supervised agricultural experience program.
- 5.2 Identify the various types of supervised agricultural experience programs.
- 5.3 Describe characteristics of a successful supervised agricultural experience program.
- 5.4 Select and plan an individual supervised agricultural experience program.
- 5.5 Relate supervised agricultural experience programs to FFA awards programs.

- 1. List examples of appropriate supervised agricultural experience programs.
- 2. Analyze a sample supervised agricultural experience program.
- 3. Visit an outstanding supervised agricultural experience program in the community.
- 4. Select individual enterprises, and plan individual supervised agricultural experience program.
- 5. Participate in chapter achievement award program.



# USING HAND TOOLS AND AGRICULTURAL POWER EQUIPMENT

#### COMPETENCY/TASK

- 6.1 Explain, demonstrate, and practice safety practices.
- 6.2 Identify portable power equipment, hand tools, and accessories.
- 6.3 Demonstrate the proper use of portable power equipment, hand tools, and accessories.
- 6.4 Perform woodworking skills.
- 6.5 Explain basic principles of electricity.
- 6.6 Perform basic electrical wiring skills.
- 6.7 Cut, shape, and drill metal.
- 6.8 Explain the arc welding process.
- 6.9 Operate arc welding equipment.
- 6.10 Perform measuring skills.
- 6.11 Read, interpret and construct plans for a mechanics project.
- 6.12 Explain operation principles of four-stroke cycle engines.

- 1. Pass safety test on using power equipment.
- 2. Identify hand or portable power woodworking tools.
- 3. Identify hand or portable power metal working tools.
- 4. Complete an arc welding project.
- 5. Participate in an agricultural mechanics contest.
- 6. Demonstrate the proper use of one woodworking and one metal working tool.



7. Construct a woodworking project.

Examples: Flower Pot Stand Gun Rack

Gun Rack Nail Box Stool

Condiment Holder

8. Select a cold metal project.

Examples: Template

Template C-Clamp Metal Box Eye Bolt Feed Scoop

- 9. Identify small engine parts.
- 10. Complete a simple wiring exercise.



# DUTY AREA 7 DEVELOPING LEADERSHIP SKILLS

#### COMPETENCY/TASK

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- 7.1 Complete a personal development inventory.
- 7.2 Explain opportunities for leadership development through the FFA.
- 7.3 Use democratic principles in conducting an effective meeting.
- 7.4 Develop an understanding of the FFA.

- 1. List agribusiness leadership opportunities in the community.
- 2. Participate in chapter meeting.
- 3. Participate on a committee.
- 4. Participate in at least one FFA leadership activity.
- 5. Complete a personality self-rating scale.
- 6. Recite and explain the meaning of the FFA Creed.
- 7. Participate in school, community, or church leadership activities.



#### EXPERIMENTING IN AGRICULTURE

#### **COMPETENCY/TASK**

- 8.1 Identify the components of a research project.
- 8.2 Practice safety procedures in performing experiments.
- 8.3 Perform an agricultural experiment.
- 8.4 Evaluate the results of an experiment.
- 8.5 Develop experimental reporting skills.

- 1. Exhibit a project in an Agricultural Science Fair or school science fair.
- 2. Conduct an agricultural research project.
- 3. Use a practical experiment as a supervised agricultural experience program.
- 4. Tour an experimental station.



## LANGUAGE ARTS, MATHEMATICS, AND SCIENCE STANDARDS OF LEARNING OBJECTIVES

The following section contains the Language Arts, Mathematics, and Science Standards of Learning (SOL) objectives for grades 6, 7, and 8. Each SOL objective is cross-referenced to the individual tasks listed in this guide.

Specific objectives that are incorporated in the teaching of an agriscience task are marked on the following matrices. The selection of objectives that have been marked was based on the application examples listed with each task. Undoubtedly, teachers will use additional instructional activities in teaching tasks in this document. Consequently, additional Standards of Learning objectives would be incorporated in their instruction. Teachers may want to adjust the following matrices to correspond to their instructional activities.



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Matrices for Introduction to Agriscience 8002 (Grade 6)



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DUT LANG STAI	SY AREA 1: DESCRIBING AGRICULTURE  GUAGE ARTS/ENGLISH/READING NDARDS OF LEARNING	Define agriculture/agriscience.	Discuss impact of agriculture on world economy.	Identify key factors that have shaped agricultural industry in the U.S.	1	Identify research and development activities in agriculture.				
GRA	DE 6	=	2	<u></u>	1.4	1.5	1	ł		
6.1	Give accurate multi-step oral directions.									
6.2	Compare and contrast ideas found in printed material.	•	•	•	•	·				
6.3	Participate in various prewriting activities.	•	•	•						
6.4	Proofread paragraphs written by himself or herself and by other students.		•	•						
6.5	Write a paragraph containing a main idea and several supporting details.		•	•						
6.6	Write a business letter using a standard format.									
6.7	Apply in writing the major conventions of spelling.		_	_	_	_		_	<u> </u>	
6.8	Recognize the major elements of a story.		L				<u> </u>	<u> </u>	_	igspace
6.9	Create brief narratives.	_		_	<u> </u>	<u> </u>	_	_	_	<del> </del>
6.10	Recognize the use of persuasive techniques.	_	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$	<u> </u>	_	↓_	_	_	-	
6.11	Use the card catalog to locate sources of information.	$oxed{}$	<u> •</u>	•	_	╀	_	_	_	ــــــ
6.12	Select and use appropriate reference sources in gathering information to answer specific questions.	•	·	<u>  •</u>	·	•	_	_	<u> </u>	igspace
6.13	Use mass media to obtain information.		<u> •</u>		$oldsymbol{ol}}}}}}}}}}}}}}}}}}$	$oxed{\bot}$	_			↓_
6.14	Form complex sentences using the most common subordinating conjunctions.				_		↓_	igspace	$oldsymbol{ol}}}}}}}}}}}}}}}}}$	↓_
6.15	Understand that personal values and points of view influence what is said, heard, and read.			•						



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GR	ADE 6		and and		imal				
	Y AREA 2: INTRODUCING PLANT AND ANIMAL LIFE CYCLES	Identify and explain functions of plant systems.	Identify basic requirements for plant growth and development.	Identify plants of economic importance to community.	Identify basic requirements for animal growth and development.	identify careers in plant science.	Identify careers in animal science.		
	GUAGE ARTS/ENGLISH/READING NDARDS OF LEARNING	ent	ow ow	ent	lent	lent	lent		
GRA			ľ		l i	_			
		2.1	2.2	2.3	2.4	2.5	2.6		L
6.1	Give accurate multi-step oral directions.	•			•				
6.2	Compare and contrast ideas found in printed material.	•	•	•	•	•	•		
6.3	Participate in various prewriting activities.								
6.4	Proofread paragraphs written by himself or herself and by other students.						•		
6.5	Write a paragraph containing a main idea and several supporting details.				•	•			
6.6	Write a business letter using a standard format.								
6.7	Apply in writing the major conventions of spelling.								
6.8	Recognize the major elements of a story.					•			
6.9	Create brief narratives.						•		
6.10	Recognize the use of persuasive techniques.					•	•		
6.11	Use the card catalog to locate sources of information.	•			•	•			
6.12	Select and use appropriate reference sources in gathering information to answer specific questions.	•	•	•	•	•	•		
6.13	Use mass media to obtain information.						•		
6.14	Form complex sentences using the most common subordinating conjunctions.						•		
6.15	Understand that personal values and points of view influence what is said, heard, and read.						•		
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GRA						ers,	į			
DUT	Y AREA 3: COMMUNICATING WITH OTHERS	Discuss the importance of effective communication.	Participate in a group discussion.	Communicate on the telephone.	Communicate through letters.	Communicate through newspapers, radio, and T.V.				
	SUAGE ARTS/ENGLISH/READING	iscus	artici iscus	omu	m o	adio				
STAN	DANDS OF ELFANORE	3.1 D	7	m	3.4 C	3.5				
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6.1	Give accurate multi-step oral directions.			<u> </u>		•			<u> </u>	$\vdash \vdash$
6.2	Compare and contrast ideas found in printed material.	•	•	·	·	·		<u> </u>		
6.3	Participate in various prewriting activities.	٠			·	·		_	<u> </u>	
6.4	Proofread paragraphs written by himself or herself and by other students.	٠			·	Ŀ		<u> </u>	_	
6.5	Write a paragraph containing a main idea and several supporting details.	·			ŀ	Ŀ	_		<u> </u>	
6.6	Write a business letter using a standard format.	Ŀ		_	<u> •</u>	<u>  •</u>	<u> </u>	_	_	<u> </u>
6.7	Apply in writing the major conventions of spelling.	Ŀ	<u> </u>	<u> </u>	•	<u>  •</u>	ļ_	_	↓_	<u> </u>
6.8	Recognize the major elements of a story.	·	<u>  • </u>	ŀ	_	•	_	<u> </u>	-	ــــ
6.9	Create brief narratives.			↓_	<u> </u>	╄	1_	╄-	-	↓
6.10	Recognize the use of persuasive techniques.	ŀ	·	<u> •</u>	ŀ	1:	↓_	_	↓_	—
6.11	Use the card catalog to locate sources of information.	ŀ		_	_	_	_	_	$\perp$	↓_
6.12	Select and use appropriate reference sources in gathering information to answer specific questions.	·	•	<u>  •</u>	1.	<u> </u>	1	↓_	_	lacksquare
6.13	Use mass media to obtain information.	ŀ		<u> •</u>	<u> </u>	1.	$\downarrow$	$\downarrow$	╀-	╀
6.14	Form complex sentences using the most common subordinating conjunctions.	<u>  •</u>	_	$oldsymbol{\downarrow}$	<u> </u>	_	$\perp$	1	_	igapha
6.15	Understand that personal values and points of view influence what is said, heard, and read.	•	•	•						



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GRA	ADE 6				ring					
רטם	ΓY AREA 4:	INTRODUCING AGRICULTURAL MECHANICS TECHNOLOGY	Determine the importance of agri- cultural mechanics technology.	identify basic laboratory safety procedures.	Describe new agricultural engineering technologies.	identify and use basic hand tools for woodworking.				
LAN	GUAGE ARTS/E	NGLISH/READING	tura	TE Š		N Sign	l			
STAI	NDARDS OF LEA	ARNING	ξď	ᅙᇗ	2 2	호호				
GRA	DE 6	·	<del>1</del> .	4.2	4.3	4.4				
6.1	Give accurate mu	ti-step or al directions.								
6.2	Compare and con	trast ideas found in printed material.	•	•	•	•				
6.3	Participate in vari	ous prewriting activities.								
6.4	other students.	aphs written by himself or herself and by								
6.5	Write a paragraph supporting details	n containing a main idea and several s.			•					
6.6	Write a business !	etter using a standard format.								
6.7	Apply in writing t	he major conventions of spelling.								
6.8	Recognize the ma	jor elements of a story.								
6.9	Create brief narra	itives.			•					
6.10	Recognize the use	e of persuasive techniques.								
6.11	Use the card cata	og to locate sources of information.								
6.12	Select and use ap information to an	propriate reference sources in gathering swer specific questions.	•	•	•	•				
6.13	Use mass media t	o obtain information.								
6.14	Form complex ser subordinating cor	ntences using the most common njunctions.								
6.15	Understand that influence what is	personal values and points of view said, heard, and read.								



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GRA	DE 6	nviron-			_	iety.	ater.		-	
דטם	Y AREA 5: INTRODUCING ECOLOGY AND CONSERVATION	Explain how organisms and the environment work together.	dentify conservation measures.	Identify various types of natural resources.	Identify ecology and conservation concerns in the community.	dentify clean water needs of society.	Explain methods of conserving water.	Discuss home water conservation techniques.	Describe how agriculture and the environment are interrelated.	
	SUAGE ARTS/ENGLISH/READING IDARDS OF LEARNING DE 6	5.1 Explain how organis ment work together	5.2 Identify conse	5.3 Identify varior resources.	4	יליו 	5.6 Explain metho	5.7 Discuss home techniques.	∞	
		20	2	2	5.	2	2	2	ı.	
6.1	Give accurate multi-step oral directions.						Ŀ	·		
6.2	Compare and contrast ideas found in printed material.	•	•	•	•	•	•	•		
6.3	Participate in various prewriting activities.									
6.4	Proofread paragraphs written by himself or herself and by other students.						٠		•	
6.5	Write a paragraph containing a main idea and several supporting details.		•				·		•	
6.6	Write a business letter using a standard format.									
6.7	Apply in writing the major conventions of spelling.									
6.8	Recognize the major elements of a story.	•								
6.9	Create brief narratives.		•							
6.10	Recognize the use of persuasive techniques.							•	·	
6.11	Use the card catalog to locate sources of information.	•	•						·	
6.12	Select and use appropriate reference sources in gathering information to answer specific questions.	•	•	•	•	·	·	·	•	
6.13	Use mass media to obtain information.	•	•	•	•	·	ŀ	•		
6.14	Form complex sentences using the most common subordinating conjunctions.									
6.15	Understand that personal values and points of view influence what is said, heard, and read.						1 •	•		1



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GRADE 6	ities	nities		ents 15.					
DUTY AREA 6: IDENTIFYING CAREER OPPORTUNITIES IN AGRICULTURE  LANGUAGE ARTS/ENGLISH/READING	Identify full-time career opportunities in agriculture in Virginia.	dentify part-time career opportunities in agriculture in Virginia.	Explain career opportunities in agribusiness.	Determine educational requirements for certain agricultural occupations.					
STANDARDS OF LEARNING	1								
GRADE 6	6.1	6.2	6.3	6.4					
6.1 Give accurate multi-step oral directions.									
6.2 Compare and contrast ideas found in printed material.	•	•	•	•					
6.3 Participate in various prewriting activities.									
6.4 Proofread paragraphs written by himself or herself and by other students.	•			٠					
6.5 Write a paragraph containing a main idea and several supporting details.	•	•	•	·					
6.6 Write a business letter using a standard format.	•		•						
6.7 Apply in writing the major conventions of spelling.				·		<u> </u>		<u> </u>	
6.8 Recognize the major elements of a story.			<u> </u>			<u> </u>	<u> </u>	Ļ	
6.9 Create brief narratives.	<u> •</u>	ŀ						_	
6.10 Recognize the use of persuasive techniques.	_			<u> </u>	_	$oxed{igspace}$	_	_	
6.11 Use the card catalog to locate sources of information.				•	$oxed{oxed}$	igspace	<u> </u>	<u> </u>	<u> </u>
6.12 Select and use appropriate reference sources in gathering information to answer specific questions.	ŀ	·	•	•		_			
6.13 Use mass media to obtain information.						<u> </u>			<u> </u>
6.14 Form complex sentences using the most common subordinating conjunctions.							_		
6.15 Understand that personal values and points of view influence what is said, heard, and read.	•	•							



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GRA	ADE 6			ped	icul- ty.	nt		
	TY AREA 1: DESCRIBING AGRICULTURE	Define agriculture/agriscience.	Discuss impact of agriculture on world economy.	Identify key factors that have shaped agricultural industry in the U. S.	Describe interdependency of agricul ture and other segments of society.	identify research and development activities in agriculture.		
GRA		F	1.2	1.3	1.4	1.5		
6.1	Identify the place value of each digit in a nine digit numeral.							
6.2	Round a given whole number, 99,999 or less, to the nearest ten, hundred, thousand, or ten-thousand.							
6.3	Find the sum of a set having three or fewer whole numbers each 99,999 or less.							
6.4	Find the difference between two whole numbers, each 99,999 or less.							
6.5	Find the product of two whole numbers when one factor is 99 or less and the other factor is 9,999 or less.							
6.6	Find the quotient of two whole numbers given a dividend of four digits or less and a divisor of two digits or less.							
6.7	Compare the numerical values of two decimals through thousandths using the sumbols >, <, or =.							
6.8	Add with decimals (two addends) through thousandths.							
6.9	Subtract with decimals through thousandths.							
6.10	Find the product of two numbers expressed as decimals such that the product contains no more than three decimal places.	L	$oxed{igspace}$					
6.11	Divide a number expressed in decimal form, through thousandths, by a whole number less than 20.							
6.12	Add with fractions and mixed numerals where the sum of the fractional parts is less than one.							
6.13	Subtract with fractions and mixed numerals, no regrouping.							
6.14	Multiply with simple fractions having denominators of 10 or less.							
6.15	Make conversions within the U.S. customary system.			_	_		 	
6.16	Identify the relationships among metric units denoted by the prefixes kilo, centi, and milli.		igspace				 <u> </u>	
6.17	Add and subtract measurements without regrouping of measurement units.		$oxed{oxed}$					
6.18	Find the perimeter of a square and a rectangle using addition.							
6.19	Determine the number of square units in a rectangular region, given an appropriate drawing.							
6.20	Given a set of ordered pairs of whole numbers, locate the points in a coordinate plane.							
6.21	Solve word problems requiring the use of addition, subtraction, multiplication, and division of whole numbers.							
6.22	Solve word problems requiring the use of addition, subtraction, multiplication, and division of fractional numbers.							
6.23	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.							



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GRA	DE 6		ınt		imal					
DUT	Y AREA 2: INTRODUCING PLANT AND ANIMAL LIFE CYCLES	ain functions of	Identify basic requirements for plant growth and development.	Identify plants of economic importance to community.	Identify basic requirements for animal growth and development.	in plant science.	in animal science.			
MAT	H STANDARDS OF LEARNING	identify and explain functions of plant systems.	dentify basic rec growth and deve	Identify plants o tance to commu	Identify basic rea growth and dev	identify careers in plant science.	Identify careers in			
GRAI	7, 31,7110,71103 01 == 11111111	2.1	2.2	2.3	2.4	2.5	5.6			
6.1	Identify the place value of each digit in a nine digit numeral.									
6.2	Round a given whole number, 99,999 or less, to the nearest ten, hundred, thousand, or ten-thousand.									
6.3	Find the sum of a set having three or fewer whole numbers each 99,999 or less.									
6.4	Find the difference between two whole numbers, each 99,999 or less.									
6.5	Find the product of two whole numbers when one factor is 99 or less and the other factor is 9,999 or less.									
6.6	Find the quotient of two whole numbers given a dividend of four digits or less and a divisor of two digits or less.				_					
6.7	Compare the numerical values of two decimals through thousandths using the sumbols >, <, or =.									
6.8	Add with decimals (two addends) through thousandths.						<u>  • </u>		<u> </u>	
6.9	Subtract with decimals through thousandths.		_			_	<u> •</u>			
6.10	Find the product of two numbers expressed as decimals such that the product contains no more than three decimal places.				<u> </u>		<u> </u>		<u> </u>	
6.11	Divide a number expressed in decimal form, through thousandths, by a whole number less than 20.						<u> </u>	L		
6.12	Add with fractions and mixed numerals where the sum of the fractional parts is less than one.						<u> </u>			
6.13	Subtract with fractions and mixed numerals, no regrouping.	L	_	_		_		_		
6.14	Multiply with simple fractions having denominators of 10 or less.	_		<u> </u>			<u> </u>			
6.15	Make conversions within the U.S. customary system.	<u> </u>	_	<u> </u>	_	igspace	<u> </u>	_	<u> </u>	<u> </u>
6.16	Identify the relationships among metric units denoted by the prefixes kilo, centi, and milli.			<u> </u>	<u> </u>	<u> </u>	1_	_	<u> </u>	
6.17	Add and subtract measurements without regrouping of measurement units.		L	<u> </u>	_	↓_	<u> </u>	↓_	_	<u> </u>
6.18	addition.	_	$\perp$							_
6.19	Determine the number of square units in a rectangular region, given an appropriate drawing.	_				_			<u> </u>	
6.20	Given a set of ordered pairs of whole numbers, locate the points in a coordinate plane.	$oldsymbol{\perp}$		$\perp$	_					_
6.21	Solve word problems requiring the use of addition, subtraction, multiplication, and division of whole numbers.		$oldsymbol{\perp}$	1		$oldsymbol{\perp}$	_			
6.22	Solve word problems requiring the use of addition, subtraction, multiplication, and division of fractional numbers.								_	_
6.23	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.									



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GŖA	DE 6					۲۶,			
דטם	Y AREA 3: COMMUNICATING WITH OTHERS	Discuss the importance of effective communication.	a group	Communicate on the telephone.	Communicate through letters.	Communicate through newspapers, radio, and T.V.			
		cuss the im ective com	Participate in discussion.	mmunicate	mmunicate	mmunicate dio, and T.V			
MAT GRA	H STANDARDS OF LEARNING DE 6	3.1 Dis	3.2 Par dis	3.3 Co	3.4 Co	3.5 Co ra			
6.1	Identify the place value of each digit in a nine digit numeral.								
6.2	Round a given whole number, 99,999 or less, to the nearest ten, hundred, thousand, or ten-thousand.			·					
6.3	Find the sum of a set having three or fewer whole numbers each 99,999 or less.								
6.4	Find the difference between two whole numbers, each 99,999 or less.								
6.5	Find the product of two whole numbers when one factor is 99 or less and the other factor is 9,999 or less.				·				
6.6	Find the quotient of two whole numbers given a dividend of four digits or less and a divisor of two digits or less.								
6.7	Compare the numerical values of two decimals through thousandths using the sumbols >, <, or =.								
6.8	Add with decimals (two addends) through thousandths.								
6.9	Subtract with decimals through thousandths.								
6.10	Find the product of two numbers expressed as decimals such that the product contains no more than three decimal places.								
6.11	Divide a number expressed in decimal form, through thousandths, by a whole number less than 20.				_				
6.12	Add with fractions and mixed numerals where the sum of the fractional parts is less than one.								
6.13	Subtract with fractions and mixed numerals, no regrouping.								
6.14	Multiply with simple fractions having denominators of 10 or less.								
6.15					L				
6.16	Identify the relationships among metric units denoted by the prefixes kilo, centi, and milli.		<u> </u>		L		<u> </u>		
6.17	Add and subtract measurements without regrouping of measurement units.		ļ	_					
6.18	Find the perimeter of a square and a rectangle using addition.								
6.19	Determine the number of square units in a rectangular region, given an appropriate drawing.								
6.20	Given a set of ordered pairs of whole numbers, locate the points in a coordinate plane.								
6.21	Solve word problems requiring the use of addition, subtraction, multiplication, and division of whole numbers.								
6.22	Solve word problems requiring the use of addition, subtraction, multiplication, and division of fractional numbers.								
6.23	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.								



GRA	DE 6	Ė		ering						
	Y AREA 4: INTRODUCING AGRICULTURAL MECHANICS TECHNOLOGY	Determine the importance of agri- cultural mechanics technology.	identify basic laboratory safety procedures.	Describe new agricultural engineering technologies.	identify and use basic hand tools for woodworking.					
GRA	U STAIRDANDS OF FFUNITIES	4.1	4.2	4.3	4.4					
6.1	Identify the place value of each digit in a nine digit numeral.									
6.2	Round a given whole number, 99,999 or less, to the nearest ten, hundred, thousand, or ten-thousand.									
6.3	Find the sum of a set having three or fewer whole numbers each 99,999 or less.	_								
6.4	Find the difference between two whole numbers, each 99,999 or less.									
6.5	Find the product of two whole numbers when one factor is 99 or less and the other factor is 9,999 or less.									
6.6	Find the quotient of two whole numbers given a dividend of four digits or less and a divisor of two digits or less.		<u> </u>			L				
6.7	Compare the numerical values of two decimals through thousandths using the sumbols >, <, or =.									
6.8	Add with decimals (two addends) through thousandths.		<u> </u>		_					
6.9	Subtract with decimals through thousandths.	lacksquare	<u> </u>		_	_	_			
6.10	Find the product of two numbers expressed as decimals such that the product contains no more than three decimal places.	<u> </u>	<u> </u>		<u> </u>		<u> </u>		_	
6.11	Divide a number expressed in decimal form, through thousandths, by a whole number less than 20.		<u> </u>		_	_				
6.12	the fractional parts is less than one.			<u> </u>			<u> </u>		_	
6.13	Subtract with fractions and mixed numerals, no regrouping.	_	_	_	_	<u> </u>	_	<u> </u>		
6.14	Multiply with simple fractions having denominators of 10 or less.	<u> </u>	↓_	$oldsymbol{ol}}}}}}}}}}}}}}$	_		L		<u> </u>	
6.15	Make conversions within the U.S. customary system.	_	+	$\vdash$	_	_			_	
6.16	Identify the relationships among metric units denoted by the prefixes kilo, centi, and milli.	lacksquare	_	-	1	-	<u> </u>		igwdap	
6.17	Add and subtract measurements without regrouping of measurement units.	igspace		_	<u> </u>	1			<u> </u>	
6.18	addition.	_	_	_	↓		_	_		
6.19	region, given an appropriate drawing.		$\downarrow$	-	<del> </del>	<u> </u>				
6.20	Given a set of ordered pairs of whole numbers, locate the points in a coordinate plane.		$oldsymbol{\perp}$	_		_	$\perp$	$\downarrow$	_	
6.21	Solve word problems requiring the use of addition, subtraction, multiplication, and division of whole numbers.	_		_	<u> </u>	_	_	igspace	↓_	
6.22	Solve word problems requiring the use of addition, subtraction, multiplication, and division of fractional numbers.									
6.23	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.									



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GR.	ADE 6	viron-				ty.	ter.			
	TY AREA 5: INTRODUCING ECOLOGY AND CONSERVATION  TH STANDARDS OF LEARNING	Explain how organisms and the environment work together.	Identify conservation measures.	Identify various types of natural resources.	Identify ecology and conservation concerns in the community.	Identify clean water needs of society.	Explain methods of conserving water.	Discuss home water conservation techniques.	Describe how agriculture and the environment are interrelated.	
GRA	DE 6	5.1	5.2	5.3	5.4	5.5	9.5	5.7	5.8	
6.1	Identify the place value of each digit in a nine digit numeral.									
6.2	Round a given whole number, 99,999 or less, to the nearest ten, hundred, thousand, or ten-thousand.									
6.3	Find the sum of a set having three or fewer whole numbers each 99,999 or less.									
6.4	Find the difference between two whole numbers, each 99,999 or less.									
6.5	Find the product of two whole numbers when one factor is 99 or less and the other factor is 9,999 or less.									
6.6	Find the quotient of two whole numbers given a dividend of four digits or less and a divisor of two digits or less.									
6.7	Compare the numerical values of two decimals through thousandths using the sumbols >, <, or =.									
6.8	Add with decimals (two addends) through thousandths.									
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6.10	Find the product of two numbers expressed as decimals such that the product contains no more than three decimal places.									
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6.14	Multiply with simple fractions having denominators of 10 or less.									
6.15	Make conversions within the U.S. customary system.									Щ
6.16	Identify the relationships among metric units denoted by the prefixes kilo, centi, and milli.							<u> </u>		
6.17	Add and subtract measurements without regrouping of measurement units.									
6.18	Find the perimeter of a square and a rectangle using addition.									
6.19	Determine the number of square units in a rectangular region, given an appropriate drawing.									
6.20	Given a set of ordered pairs of whole numbers, locate the points in a coordinate plane.									
6.21	Solve word problems requiring the use of addition, subtraction, multiplication, and division of whole numbers.									
6.22	Solve word problems requiring the use of addition, subtraction, multiplication, and division of fractional numbers.									
6.23	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.									



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GRA	DE 6	ities	nities		ents is.					
דטם	Y AREA 6: IDENTIFYING CAREER OPPORTUNITIES IN AGRICULTURE	Identify full-time career opportunities in agriculture in Virginia.	identify part-time career opportunities in agriculture in Virginia.	Explain career opportunities in agribusiness.	Determine educational requirements for certain agricultural occupations.					
MAT GRA	H STANDARDS OF LEARNING DE 6	6.1 Ide	6.2 ide	6.3 Ex	6.4 De					
6.1	Identify the place value of each digit in a nine digit numeral.									
6.2	Round a given whole number, 99,999 or less, to the nearest ten, hundred, thousand, or ten-thousand.									
6.3	Find the sum of a set having three or fewer whole numbers each 99,999 or less.									
6.4	Find the difference between two whole numbers, each 99,999 or less.									
6.5	Find the product of two whole numbers when one factor is 99 or less and the other factor is 9,999 or less.									
6.6	Find the quotient of two whole numbers given a dividend of four digits or less and a divisor of two digits or less.									
6.7	Compare the numerical values of two decimals through thousandths using the sumbols >, <, or =.									
6.8	Add with decimals (two addends) through thousandths.									
6.9	Subtract with decimals through thousandths.									Щ
6.10	Find the product of two numbers expressed as decimals such that the product contains no more than three decimal places.									
6.11	Divide a number expressed in decimal form, through thousandths, by a whole number less than 20.									
6.12	Add with fractions and mixed numerals where the sum of the fractional parts is less than one.									
6.13	Subtract with fractions and mixed numerals, no regrouping.						_			
6.14	Multiply with simple fractions having denominators of 10 or less.									
6.15	Make conversions within the U.S. customary system.						_			
6.16	Identify the relationships among metric units denoted by the prefixes kilo, centi, and milli.						$oldsymbol{ol}}}}}}}}}}}}}}}}}}$			
6.17	Add and subtract measurements without regrouping of measurement units.			_		_		_		
6.18	Find the perimeter of a square and a rectangle using addition.					$oxed{oxed}$				
6.19	Determine the number of square units in a rectangular region, given an appropriate drawing.									
6.20	Given a set of ordered pairs of whole numbers, locate the points in a coordinate plane.					L				
6.21	Solve word problems requiring the use of addition, subtraction, multiplication, and division of whole numbers.								_	
6.22	Solve word problems requiring the use of addition, subtraction, multiplication, and division of fractional numbers.									
6.23	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.									
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GRA	DE 6			ped	cul- X	<b>*</b>				
τυα	Y AREA 1: DESCRIBING AGRICULTURE	Define agriculture/agriscience.	Discuss impact of agriculture on world economy.	identify key factors that have shaped agricultural industry in the U. S.	e interdependency of agricul d other segments of society.	Identify research and development activities in agriculture.				
		ine	Se	ntify	Describe ture and o	ntify	İ			
SCIEI GRA	NCE STANDARDS OF LEARNING DE 6	1.1 De	1.2 Dis	1.3 Ide	1.4 De tur	1.5 Ide				
6.1	Demonstrate safety procedures in the use of laboratory equipment and materials, while working individually and in groups.									
6.2	Use process skills as a basis for solving problems, answering questions, and providing explanations.					•				
6.3	Use appropriate materials, tools, and units of measurement in conducting scientific observations.									
6.4	Use various resources to explore topics of personal interest and career opportunities in areas of science.									
6.5	Observe changes and classify them as chemical or physical.									
6.6	Use observation and experimentation to determine chemical and physical properties of substances.									
6.7	Determine the relationship between changes in temperature and the states of matter for given substances.									
6.8	Construct models of or diagrams for atoms.									
6.9	Determine electrical energy consumption using common units.									
6.10	Observe materials and classify them as mixtures or nonmixtures (elements and compounds).									
6.11	Define kinetic and potential energy and then state examples of each.									
6.12	Classify the forms of energy involved in energy transformations.									
6.13	Identify the life processes of organisms.									
6.14	Describe the dependence of organisms upon non-living things.									
6.15	Describe the differences and similarities between plants and animals.									
6.16	Describe the interaction and interdependence of plants and animals.								<u>                                     </u>	
6.17	Compare and contrast natural cycles.							_	igspace	
6.18		_	_							
6.19	Describe the gravitational effects of the sun and moon upon the earth's environment.	<u> </u>	_	_				_		
6.20	Explain positive and negative effects of human interaction with the environment.			_	_					_
6.21	Describe the uses and conservation of renewable and nonrenewable resources.	<u> </u>			ŀ					
6.22	Explain the relationship of the sun to most forms of energy on earth.			_	<u> </u>		_			
6.23	Describe the basic relationship between electricity and magnetism.									
6.24	Identify and describe cellular components.									



GRA	DE 6		plant	.or-	animal		çe.			
DUT	Y AREA 2: INTRODUCING PLANT AND ANIMAL LIFE CYCLES	Identify and explain functions of plant systems.	Identify basic requirements for plant growth and development.	identify plants of economic importance to community.	basic requirements for animal and development.	dentify careers in plant science	Identify careers in animal science			
SCIFI	NCE STANDARDS OF LEARNING	Identify and explant systems.	Identify basic growth and d	identify plant tance to comi	Identify basic growth and d	Identify care	Identify care			
GRA	DE 6	2.1	2.2	2.3	2.4	2.5	2.6			_
6.1	Demonstrate safety procedures in the use of laboratory equipment and materials, while working individually and in groups.									
6.2	Use process skills as a basis for solving problems, answering questions, and providing explanations.	·	·		٠					
6.3	Use appropriate materials, tools, and units of measurement in conducting scientific observations.									
6.4	Use various resources to explore topics of personal interest and career opportunities in areas of science.					·	·			
6.5	Observe changes and classify them as chemical or physical.									
6.6	Use observation and experimentation to determine chemical and physical properties of substances.	·								
6.7	Determine the relationship between changes in temperature and the states of matter for given substances.									
6.8	Construct models of or diagrams for atoms.	•			_			_		
6.9	Determine electrical energy consumption using common units.									
6.10	Observe materials and classify them as mixtures or nonmixtures (elements and compounds).							<u> </u>	L.	
6.11	Define kinetic and potential energy and then state examples of each.					<u> </u>			<u> </u>	
6.12	Classify the forms of energy involved in energy transformations.								_	
6.13	Identify the life processes of organisms.	·	<u>  • </u>	•	·			<u> </u>		
6.14	Describe the dependence of organisms upon non-living things.	•	ŀ	•	·					
6.15	Describe the differences and similarities between plants and animals.	•	•	·	•		$oldsymbol{igstyle igstyle igytyle igstyle igytyle igytyle igytyle igytyle igytyle igytyle igstyle igytyle	$oldsymbol{ol}}}}}}}}}}}}}}$		
6.16	Describe the interaction and interdependence of plants and animals.	•	•	ŀ	·	ŀ	_	$oldsymbol{igstyle igstyle igytyle igstyle igytyle igytyle igytyle igytyle igytyle igytyle igstyle igytyle		
6.17		·	ŀ	ŀ	•	_	_	<u> </u>		<u> </u>
6.18	Describe the movements of the earth, sun, and moon.	1_	1_	lacksquare	igspace	_		_	igspace	igspace
6.19	the earth's environment.		_		_	_	_	$\perp$	_	_
6.20	Explain positive and negative effects of human interaction with the environment.	$\downarrow$	_	_			_	_	_	┞-
6.21	Describe the uses and conservation of renewable and nonrenewable resources.	_	$oldsymbol{\perp}$	_	1_		$\bot$	$\perp$		_
6.22	on earth.	$\perp$	$\perp$	$\perp$	$oldsymbol{\perp}$	$\perp$		_	_	_
6.23	Describe the basic relationship between electricity and magnetism.	$\perp$	$\perp$	_	1_	$\perp$	_	<u> </u>	1_	_
6.24	Identify and describe cellular components.									



GRADE 6						1	
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DUTY AREA 3: COMMUNICATING WITH OTHERS  Discress the imbortance of effective communication.  SCIENCE STANDARDS OF LEARNING	Participate in a group discussion.	Communicate on the telephone.	Communicate through letters.	Communicate through newspapers, radio, and T.V.			
COADEC	3.2 Pč	3.3 Cc	3.4 C	3.5 CC			
6.1 Demonstrate safety procedures in the use of laboratory equipment and materials, while working individually and in groups.	•						
6.2 Use process skills as a basis for solving problems, answering questions, and providing explanations.	•						
6.3 Use appropriate materials, tools, and units of measurement in conducting scientific observations.							
6.4 Use various resources to explore topics of personal interest and career opportunities in areas of science.							
6.5 Observe changes and classify them as chemical or physical.							
6.6 Use observation and experimentation to determine chemical and physical properties of substances.							
6.7 Determine the relationship between changes in temperature and the states of matter for given substances.							
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6.9 Determine electrical energy consumption using common units.							
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6.12 Classify the forms of energy involved in energy transformations.							
6.13 Identify the life processes of organisms.							
6.14 Describe the dependence of organisms upon non-living things.							
6.15 Describe the differences and similarities between plants and animals.							
6.16 Describe the interaction and interdependence of plants and animals.							
6.17 Compare and contrast natural cycles.							
6.18 Describe the movements of the earth, sun, and moon.							
6.19 Describe the gravitational effects of the sun and moon upon the earth's environment.	_						
6.20 Explain positive and negative effects of human interaction with the environment.							
6.21 Describe the uses and conservation of renewable and nonrenewable resources.					_		
6.22 Explain the relationship of the sun to most forms of energy on earth.				ľ			
6.23 Describe the basic relationship between electricity and magnetism.			_				
6.24 Identify and describe cellular components.							



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GRA	DE 6			ring						
	Y AREA 4: INTRODUCING AGRICULTURAL MECHANICS TECHNOLOGY	Determine the importance of agri- cultural mechanics technology.	Identify basic laboratory safety procedures.	Describe new agricultural engineering technologies.	Identify and use basic hand tools for woodworking.					
GRA	DE 6	4.1	4.2	4.3	4.4		_			
6.1	Demonstrate safety procedures in the use of laboratory equipment and materials, while working individually and in groups.	Ŀ	Ŀ		٠					
6.2	Use process skills as a basis for solving problems, answering questions, and providing explanations.			·						
6.3	Use appropriate materials, tools, and units of measurement in conducting scientific observations.	•	•		ŀ					
6.4	Use various resources to explore topics of personal interest and career opportunities in areas of science.	•		•						
6.5	Observe changes and classify them as chemical or physical.									
6.6	Use observation and experimentation to determine chemical and physical properties of substances.									
6.7	Determine the relationship between changes in temperature and the states of matter for given substances.									
6.8	Construct models of or diagrams for atoms.			_			L			
6.9	Determine electrical energy consumption using common units.								<u> </u>	
6.10	Observe materials and classify them as mixtures or nonmixtures (elements and compounds).							_	<u> </u>	
6.11	Define kinetic and potential energy and then state examples of each.									
6.12	Classify the forms of energy involved in energy transformations.									
6.13	Identify the life processes of organisms.						igspace	_		<u> </u>
6.14	Describe the dependence of organisms upon non-living things.							<u> </u>		
6.15	animals.				$oldsymbol{\perp}$	_	_			lacksquare
6.16	Describe the interaction and interdependence of plants and animals.			_	1_				_	<u> </u>
6.17			_			_		_	<u> </u>	<u> </u>
6.18		<u> </u>	_	$\perp$	_	$oldsymbol{\downarrow}$	lacksquare	-	_	_
6.19	the earth's environment.	$\perp$	_	_	$\bot$		$\perp$	$\bot$	<u> </u>	<u> </u>
6.20	with the environment.	_		_	$oldsymbol{\downarrow}$	1_	$\bot$	1	_	<u> </u>
6.21	nonrenewable resources.	$\perp$	$\perp$	$oldsymbol{\perp}$		$\perp$	1	_	_	_
6.22	on earth.		$\perp$	_	$\perp$	_		_	_	$oldsymbol{\downarrow}$
6.23	Describe the basic relationship between electricity and magnetism.	1	$\perp$	$\perp$		1			_	1
6.24	Identify and describe cellular components.		$oldsymbol{\perp}$	$\perp$						_



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GRA	ADE 6	viron-				ty.	ter.			
SCIE	TY AREA 5: INTRODUCING ECOLOGY AND CONSERVATION  NCE STANDARDS OF LEARNING	Explain how organisms and the environ ment work together.	Identify conservation measures.	Identify various types of natural resources.	Identify ecology and conservation concerns in the community.	identify clean water needs of society.	Explain methods of conserving water.	Discuss home water conservation techniques.	Describe how agriculture and the environment are interrelated.	
GRA	DE 6	5.1	5.2	5.3	5.4	5.5	9.6	5.7	5.8	
6.1	Demonstrate safety procedures in the use of laboratory equipment and materials, while working individually and in groups.									
6.2	Use process skills as a basis for solving problems, answering questions, and providing explanations.	•	•		•	•				
6.3	Use appropriate materials, tools, and units of measurement in conducting scientific observations.						•		•	
6.4	Use various resources to explore topics of personal interest and career opportunities in areas of science.				•				•	
6.5	Observe changes and classify them as chemical or physical.									
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6.14	Describe the dependence of organisms upon non-living things.	•	:							
6.15	Describe the differences and similarities between plants and animals.	•								
6.16	Describe the interaction and interdependence of plants and animals.									
6.17	Compare and contrast natural cycles.	lacksquare								
6.18	Describe the movements of the earth, sun, and moon.									
6.19	Describe the gravitational effects of the sun and moon upon the earth's environment.									
6.20	Explain positive and negative effects of human interaction with the environment.	·	·	·	•	•	·	·	٠	
6.21	Describe the uses and conservation of renewable and nonrenewable resources.	·	•	•	•	•	·	٠	٠	
6.22	Explain the relationship of the sun to most forms of energy on earth.									
6.23	Describe the basic relationship between electricity and magnetism.									
6.24	Identify and describe cellular components.									



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GRADE 6	ties	iities		ints S.					
DUTY AREA 6: IDENTIFYING CAREER OPPORTUNITIES IN AGRICULTURE  SCIENCE STANDARDS OF LEARNING	Identify full-time career opportunities in agriculture in Virginia.	Identify part-time career opportunities in agriculture in Virginia.	Explain career opportunities in agribusiness.	Determine educational requirements for certain agricultural occupations.					
GRADE 6	1.9	6.2	6.3	6.4		L			
6.1 Demonstrate safety procedures in the use of laboratory equipment and materials, while working individually and in groups.									
6.2 Use process skills as a basis for solving problems, answering questions, and providing explanations.									
6.3 Use appropriate materials, tools, and units of measurement in conducting scientific observations.									
6.4 Use various resources to explore topics of personal interest and career opportunities in areas of science.	•	•	•	٠					
6.5 Observe changes and classify them as chemical or physical.									
6.6 Use observation and experimentation to determine chemical and physical properties of substances.									
6.7 Determine the relationship between changes in temperature and the states of matter for given substances.					:				
6.8 Construct models of or diagrams for atoms.									
6.9 Determine electrical energy consumption using common units.									
6.10 Observe materials and classify them as mixtures or nonmixtures (elements and compounds).									
6.11 Define kinetic and potential energy and then state examples of each.									
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6.17 Compare and contrast natural cycles.							_	_	
6.18 Describe the movements of the earth, sun, and moon.			_			<u> </u>			_
6.19 Describe the gravitational effects of the sun and moon upon the earth's environment.	$oldsymbol{\perp}$	_	_			$oldsymbol{ol}}}}}}}}}}}}}}}}}}$		_	
6.20 Explain positive and negative effects of human interaction with the environment.	_		_	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$		_		_	
6.21 Describe the uses and conservation of renewable and nonrenewable resources.	$\perp$		_	$oxed{}$	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$	_			
6.22 Explain the relationship of the sun to most forms of energy on earth.					_		$oxed{oxed}$		
6.23 Describe the basic relationship between electricity and magnetism.							Ĺ		_
6.24 Identify and describe cellular components.									



GRA	ADE 7	<u>ි</u> ව	ture				
	TY AREA 1: RECOGNIZING THE IMPORTANCE OF AGRICULTURE/ AGRISCIENCE  GUAGE ARTS STANDARDS OF LEARNING DE 7	<ul> <li>L.T Explain the importance of agriculture to Virginia, the United States, and to the world.</li> </ul>	1.2 Describe the relationship of agriculture to other segments of society.				
7.1	Use interpersonal communication skills.	•			$\Box$		
7.2	Adjust reading rate according to purpose and the difficulty of the material.						
7.3	Form concepts based on information or ideas encountered in reading.						
7.4	Acquire information from materials which pertain to survival.		•				
7.5	Expand range of interests through wide reading.		•				
7.6	Express himself or herself in writing using forms of his or her own choice.		•				
7.7	Develop a paragraph using a prewriting, writing, and revising process.	•	•				
7.8	Perceive the relationship between vicarious experiences in literature and direct experiences.						
7.9	Enlarge speaking, reading, and writing vocabulary.	•	•				
7.10	Paraphrase information from written and oral materials.	•	•				
7.11	Take notes from written, oral, or audio-visual materials.	•	•				
7.12	Recognize the function of words within sentences.	•	•				



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GRA	ADE 7		ion.	ving	ıres.	uo	erning	lution	pu	
	TY AREA 2: CONSERVING NATURAL RESOURCES	Identify kinds of soil erosion.	Explain factors affecting soil erosion.	Explain the importance of conserving soils.	Discuss soil erosion control measures	Explain soil and water conservation measures.	Review agricultural policies concerning air quality.	Give examples of how the air pollution control program works.	Explain the relationship of trees and wildlife.	Identify careers in soil and water conservation.
GRA	DE 7	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
7.1	Use interpersonal communication skills.	•	•		•			•		
7.2	Adjust reading rate according to purpose and the difficulty of the material.								•	
7.3	Form concepts based on information or ideas encountered in reading.									
7.4	Acquire information from materials which pertain to survival.									
7.5	Expand range of interests through wide reading.		•			•		•	•	
7.6	Express himself or herself in writing using forms of his or her own choice.								•	
7.7	Develop a paragraph using a prewriting, writing, and revising process.								•	
7.8	Perceive the relationship between vicarious experiences in literature and direct experiences.									
7.9	Enlarge speaking, reading, and writing vocabulary.	•	•	•	•	•	•	•	•	•
7.10	Paraphrase information from written and oral materials.	•	·	•	٠	•	·	·	•	·
7.11	Take notes from written, oral, or audio-visual materials.	·	•	·	·	٠	•	·	•	•
7.12	Recognize the function of words within sentences.								•	



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GRA	ADE 7									
	GUAGE ARTS STANDARDS OF LEARNING DE 7	3.1 Explain the impact of agricultural research.	3.2 Identify agricultural research in animal science.	<ol> <li>Identify agricultural research in plant science.</li> </ol>	3.4 Identify research in agricultural engineering technology.	.5 Explore career opportunities in agricultural research.				
		<u> </u>	3	3	3	3.			H	
7.1	Use interpersonal communication skills.	•							Ш	
7.2	Adjust reading rate according to purpose and the difficulty of the material.									
7.3	Form concepts based on information or ideas encountered in reading.					•				
7.4	Acquire information from materials which pertain to survival.	•								
7.5	Expand range of interests through wide reading.	•	•	•	•					
7.6	Express himself or herself in writing using forms of his or her own choice.									
7.7	Develop a paragraph using a prewriting, writing, and revising process.	·				•				
7.8	Perceive the relationship between vicarious experiences in literature and direct experiences.									
7.9	Enlarge speaking, reading, and writing vocabulary.	•	•	•						
7.10	Paraphrase information from written and oral materials.	•	•	•	·					
7.11	Take notes from written, oral, or audio-visual materials.	ŀ	·	•	·					
7.12	Recognize the function of words within sentences.	•	•	•	•	1				



GRA	ADE 7		ssa	lant						
	GUAGE ARTS STANDARDS OF LEARNING DE 7	4.1 Determine economic importance of agricultural crops.	4.2 Describe the photosynthesis process of plants.	4.3 Identify and explain methods of plant reproduction.	4.4 Demonstrate proper watering and fertilization of plants.	4.5 Identify and label plants.	4.6 Identify methods of planting or transplanting	4.7 Explain the use of hydroponics in growing plants.	4.8 Discuss new technology in plant science.	4.9 Explain career opportunities in plant science.
7.1	Use interpersonal communication skills.		•					•	•	
7.2	Adjust reading rate according to purpose and the difficulty of the material.	•	•	•				•	•	
7.3	Form concepts based on information or ideas encountered in reading.									
7.4	Acquire information from materials which pertain to survival.									
7.5	Expand range of interests through wide reading.	•	•					•	•	
7.6	Express himself or herself in writing using forms of his or her own choice.	•	•	•				•	•	
7.7	Develop a paragraph using a prewriting, writing, and revising process.	•	•	•				•	•	
7.8	Perceive the relationship between vicarious experiences in literature and direct experiences.									
7.9	Enlarge speaking, reading, and writing vocabulary.	•	•	•	•	•	•	•	•	•
7.10	Paraphrase information from written and oral materials.	•	•	•	•	•	•	•	•	•
7.11	Take notes from written, oral, or audio-visual materials.	•	•	•	•	•	•	•	•	•
7.12	Recognize the function of words within sentences.	•	•	•				•	•	

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GR/	ADE 7	nals				ion		0		
	TY AREA 5: EXPLORING ANIMAL SCIENCE  GUAGE ARTS STANDARDS OF LEARNING	Determine the importance of animals to agriculture.	Explain the importance of animal evaluation.	identify key scientific terms used in the animal industry.	Explore the meat animal industry.	Explore the pleasure and companion animal industry	Discuss new technologies in animal science.	Discuss ethical concerns related to animal welfare.	Explore career opportunities in animal science	
	DE 7	5-1	22	5.3	5.4	5.5	5.6	5.7	5.8	
		"	<u> </u>	<u>"</u>	<u> </u>	<u>"</u>	-	<u>"</u>	<u> </u>	igspace
7.1	Use interpersonal communication skills.		•				•	•		
7.2	Adjust reading rate according to purpose and the difficulty of the material.	•	•				•	•		
7.3	Form concepts based on information or ideas encountered in reading.									
7.4	Acquire information from materials which pertain to survival.									
7.5	Expand range of interests through wide reading.	•	•			•	•	•		
7.6	Express himself or herself in writing using forms of his or her own choice.	•	•							
7.7	Develop a paragraph using a prewriting, writing, and revising process.	•	•			•	•	•		
7.8	Perceive the relationship between vicarious experiences in literature and direct experiences.		•							
7.9	Enlarge speaking, reading, and writing vocabulary.	•	•	٠	•	•	•	•	•	•
7.10	Paraphrase information from written and oral materials.	•	•	•	•	•	•	•	•	•
7.11	Take notes from written, oral, or audio-visual materials.	•	•	•	•	•	•	•	•	•
7.12	Recognize the function of words within sentences.	•				•	•			





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GRA	ADE 7			Ges.		for		S.		
DUT	Y AREA 6: INTRODUCING BASIC LABORATORY SKILLS	Apply safety practices.	Identify types of metal.	Perform metal fabrication practices.	Read and interpret simple plans.	Identify and use basic hand tools for woodworking.	Maintain hand tools.	Select and use measuring devices.	Select and use wood fasteners.	Finish and preserve wood.
		ğ	ent	Ę	pe	9 e	ain	   	ec	nist
	GUAGE ARTS STANDARDS OF LEARNING	₹	t			1 1		• • •	• •	
GRA	DE 7	6.1	7.9	6.3	6.4	6.5	9.9	6.7	6.8	6.9
7.1	Use interpersonal communication skills.									
7.2	Adjust reading rate according to purpose and the difficulty of the material.									
7.3	Form concepts based on information or ideas encountered in reading.									
7.4	Acquire information from materials which pertain to survival.									
7.5	Expand range of interests through wide reading.									
7.6	Express himself or herself in writing using forms of his or her own choice.									
7.7	Develop a paragraph using a prewriting, writing, and revising process.									
7.8	Perceive the relationship between vicarious experiences in literature and direct experiences.									
7.9	Enlarge speaking, reading, and writing vocabulary.	ŀ	·	·	•	·	·	·	·	٠
7.10	Paraphrase information from written and oral materials.	·	•	•	<u>  • </u>	•	·	·	·	·
7.11	Take notes from written, oral, or audio-visual materials.	•	•	•	•	ŀ	Ŀ	Ŀ	ŀ	Ŀ
7.12	Recognize the function of words within sentences.									



GRADE 7		gg.		eils.		ā		Γ	
DUTY AREA 7: ENCOURAGING PERSONAL DEVELOPMENT  LANGUAGE ARTS STANDARDS OF LEARNING GRADE 7	7.1 Identify effective leadership traits.	7.2 Identify personal development needs.	7.3 Develop oral communication skills.	7.4 Develop written communication skills.	7.5 Develop an understanding of FFA.	7.6 Develop opportunities for leadership.	7.7 Develop social skills.		
7.1 Use interpersonal communication skills.	•	•	•	•	•	•	•		
7.2 Adjust reading rate according to purpose and the difficulty of the material.									
7.3 Form concepts based on information or ideas encountered in reading.									
7.4 Acquire information from materials which pertain to survival.									
7.5 Expand range of interests through wide reading.			•	•					
7.6 Express himself or herself in writing using forms of his or her own choice.		•	•	•	•	•			
7.7 Develop a paragraph using a prewriting, writing, and revising process.				•					
7.8 Perceive the relationship between vicarious experiences in literature and direct experiences.			•			•	•		
7.9 Enlarge speaking, reading, and writing vocabulary.	•	•	•	•	•	•	•		
7.10 Paraphrase information from written and oral materials.	·	•	•	•	•	•	•		
7.11 Take notes from written, oral, or audio-visual materials.	•	•	•	•	•	•	•		
7.12 Recognize the function of words within sentences.									



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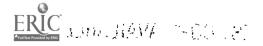
COMPETENCY/TASK

GRADE 7	e t	ture							1
			1					<b> </b>	
DUTY AREA 1: RECOGNIZING THE IMPORTANCE OF AGRICULTURE/AGRISCIENCE	Explain the importance of agriculture to Virginia, the United States, and to the world.	Describe the relationship of agriculture to other seaments of society.							
GRADE 7	1.1	1.2							
7.1 Round a given whole number, 999,999 or less, to a specified place.									
7.2 Find the sum of four or fewer whole numbers, each 999,999 or less.		٠							
7.3 Find the difference between two whole numbers, each 999,999 or less.		٠							
7.4 Find the product of two whole numbers, when one factor is 9,999 or less and the other factor is 999 or less.				L	_				
7.5 Find the quotient of two whole numbers, given a dividend of five digits or less and a divisor of three digits or less.						<u> </u>			
7.6 Add with decimals through ten-thousandths.						_			
7.7 Subtract with decimals through ten-thousandths.									
7.8 Find the product of two numbers expressed as decimals such that the product contains no more than four decimal places.			L	_		igspace			
7.9 Divide with decimals, given a dividend of no more than four digits and no more than three decimal places and a divisor of no more than three digits and no more than two decimal places.									
7.10 Add using fractions and mixed numerals.									
7.11 Subtract using fractions and mixed numerals.									
7.12 Multiply using fractions and mixed numerals.				_		_	<u> </u>		
7.13 Express common fractions having denominators of 2, 3, 4, 5, 8 and 10 as decimals.				_	Ļ				
7.14 Find the ratio of two sets of objects or two measures and record it in a standard notation.					<u> </u>	L			_
7.15 Measure length in each of the following units: inches, feet or yards; centimeters or meters.					<u> </u>				
7.16 Determine the area and perimeter of a square, rectangle, and triangle, given the dimensions and corresponding formulas.									
7.17 Identify rectangular prisms, cylinders, and cones.			_				_		_
7.18 Measure the amounts of liquid using ounces, quarts, or gallons as well as milliliters or liters.									
7.19 Construct a broken-line or bar graph.		<u> </u>	igspace	_	_	_	_		_
7.20 Find the average (mean) of a set of whole numbers.	<u> </u>	_	_	1	-	$\vdash$		_	_
7.21 Solve problems dealing with everyday situations requiring the use of addition, subtraction, multiplication, and division of whole numbers and decimals; and addition, subtraction and multiplication of fractions.							_		
7.22 Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.									



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GRA	ADE 7		on.	ing	res.	5	rning	ution	g	
	TY AREA 2: CONSERVING NATURAL RESOURCES	Identify kinds of soil erosion.	Explain factors affecting soil erosion.	Explain the importance of conserving soils.	Discuss soil erosion control measures	Explain soil and water conservation measures.	Review agricultural policies concerning air quality.	Give examples of how the air pollution control program works.	Explain the relationship of trees and wildlife.	Identify careers in soil and water conservation.
GRA		2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
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GRA	ADE 7								
	TY AREA 3: EXPLORING RESEARCH IN AGRICULTURE TH STANDARDS OF LEARNING	Explain the impact of agricultural research.	Identify agricultural research in animal science.	<ol> <li>Identify agricultural research in plant science.</li> </ol>	<ol> <li>Identify research in agricultural engineering technology.</li> </ol>	.5 Explore career opportunities in agricultural research.			
7.1	Round a given whole number, 999,999 or less, to a specified	<u>*</u>	3.2	3	3.4	3.5			
/.·	place.	<u> </u>	<u> </u>	<u> </u>					
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GRA	DE 7		ess S	lant	Р					
	Y AREA 4: EXPLORING PLANT SCIENCE	Determine economic importance of agricultural crops.	Describe the photosynthesis process of plants.	identify and explain methods of plant reproduction.	Demonstrate proper watering and fertilization of plants.	identify and label plants.	Identify methods of planting or transplanting	Explain the use of hydroponics in growing plants.	Discuss new technology in plant science.	Explain career opportunities in plant science.
MAT GRA	H STANDARDS OF LEARNING DF 7		Į.		4.4	ιņ	4.6 lo	4.7 E	4.8 D	6
GIO		4	4.2	4.3	4	4	4	4	4	4
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7.19	Construct a broken-line or bar graph.	<u>  •</u>	1_	$oldsymbol{\perp}$		$\downarrow$	1_			<u> </u>
7.20		_	$\perp$	$\perp$	$oldsymbol{\perp}$	_	1	$oldsymbol{\perp}$		<del> </del>
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7.22	Determine if a given problem includes sufficient data to solve the problem or contains unnecessary information for solving the problem.	1.	$\perp$						<u> </u>	
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GR <sub>2</sub>	ADE 7	nals				u O				
DU	TY AREA 5: EXPLORING ANIMAL SCIENCE	Determine the importance of animals to agriculture.	Explain the importance of animal evaluation.	identify key scientific terms used in the animal industry.	Explore the meat animal industry.	Explore the pleasure and companion animal industry	Discuss new technologies in animal science.	Discuss ethical concerns related to animal welfare.	Explore career opportunities in animal science.	
1	TH STANDARDS OF LEARNING DE 7	5.1 to	5.2 Ex ev	5.3 in	5.4 Ex	5.5 Ex an	5.6 Di an	5.7 Di an	5.8 Ex an	
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GRADE 7	1				s.		for				
DUTY AF	LABORATORY SKILLS		Apply safety practices.	identify types of metal.	Perform metal fabrication practices	Read and interpret simple plans.	Identify and use basic hand tools for woodworking.	Maintain hand tools.	Select and use measuring devices.	Select and use wood fasteners.	Finish and preserve wood.
GRADE 7	ANDARDS OF LEARNING		6.1 A	6.2 k	m	4	6.5 lc	9.9 V	6.7 \$	6.8 5	6.9 F
7.1 Round place.	a given whole number, 999,999 or less, to a sp	ecified	9	9	ف	ف	9	9	۳	9	
7.2 Find to	ne sum of four or fewer whole numbers, each 9	99,999									
	ne difference between two whole numbers, ea 99 or less.	ch									
7.4 Find to 9,999	ne product of two whole numbers, when one foor less and the other factor is 999 or less.	actor is									
7.5 Find to	ne quotient of two whole numbers, given a div gits or less and a divisor of three digits or less.	idend of									
7.6 Add w	rith decimals through ten-thousandths.										
7.7 Subtra	act with decimals through ten-thousandths.										
7.8 Find t	he product of two numbers expressed as decim he product contains no more than four decimal	als such places.			•						
7.9 Divide digits no mo places	e with decimals, given a dividend of no more th and no more than three decimal places and a d ore than three digits and no more than two dec i.	an four ivisor of imal			•						
7.10 Add u	sing fractions and mixed numerals.				•						
7.11 Subtr	act using fractions and mixed numerals.	_									
7.12 Multi	oly using fractions and mixed numerals.										
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7.14 Find t recore	he ratio of two sets of objects or two measures dit in a standard notation.	and									
7.15 Meas or yai	ure length in each of the following units: inche ds; centimeters or meters.	es, feet				<u> </u>					
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7.17 Ident	fy rectangular prisms, cylinders, and cones.										
7.18 Meas gallor	ure the amounts of liquid using ounces, quarts, as as well as milliliters or liters.	, or									٠
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GRADE 7  DUTY AREA 7: ENCOURAGING PERSONAL DEVELOPMENT  PARTICLE STATE OF THE STATE						_				 
GRADE 7  7.1 Round a given whole number, 999,999 or less, to a specified place.  7.2 Find the sum of four or fewer whole numbers, each 999,999 or less.  7.3 Find the difference between two whole numbers, each 999,999 or less.  7.4 Find the product of two whole numbers, when one factor is 999,999 or less and the other factor is 999 or less.  7.5 Find the quotient of two whole numbers, when one factor is 999,999 or less and the other factor is 999 or less.  7.6 Add with decimals through ten-thousandths.  7.7 Subtract with decimals through ten-thousandths.  7.8 Find the product of two numbers expressed as decimals such that the product contains no more than four decimal places.  7.9 Divide with decimals, given a dividend of no more than four digits and no more than three decimal places and divisor of no more than three digits and no more than three decimals places and a divisor of no more than three digits and no more than three decimals places and a divisor of no more than three digits and no more than three digits or two decimals and not a digit and no more than three digits and no more than three di	GŖA	ADE 7		eds.		kills.		hip.		
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GRADE 7  DUTY AREA 1: RECOGNIZING THE IMPORTANCE OF AGRICULTURE/AGRISCIENCE  SCIENCE STANDARDS OF LEARNING GRADE 7-LIFE SCIENCE  7.1 Use the basic process skills and employ the integrated questions about the environment.  7.2 Quemonstrate safe and appropriate user of tools and scientific environment.  7.3 Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate environment.  7.3 Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate environment.  7.5 Work independently and as a member of small and large groups within the classroom, in the laboratory, and during find experiences.  7.6 Expere the relationship of life science to student interests, career appropriations, and interior clomistions to science.  7.7 Construct and interpret cell models.  7.8 Investigate the structural and functional organization of examine cells, tissues, organs, and systems.  7.9 Determine the relationship between life needs and life functions.  7.10 Recognize the basic for related and special contributions to science.  7.11 Perform experiments and interpret data illustrating the process of photosynthesis.  7.12 Describe the utilization of matter among organisms in food chains, webs, and pyramids.  7.13 Illustrate the flow of energy and afforts and sing a dichotomous (two-factor) key.  7.14 Investigate the basic for related and special contingents and interpret data illustrating the process of photosynthesis.  7.15 Construct and interpret data illustrating the process of photosynthesis.  7.16 Compare and contrast biomes by examining relationships between short and biotic factors.  7.15 Investigate relationships among organisms in a biological community, using field and laboratory activity.  7.16 Compare and contrast biomes by examining relationships between short and biotic factors.					CON	IPET	FNC	Y/IA	<u> </u>	
SCIENCE STANDARDS OF LEARNING GRADE 7LIFE SCIENCE 7.1 Use the basic process skills and abasis for solving problems or answering questions about the environment. 7.2 Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment. 7.3 Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate increasingly complex science experiments. 7.4 Demonstrate proper handling and care of organisms and show respect for life and property. 7.5 Works independently and as a member of small and large groups within the classroom, in the laboratory, and during field experiences. 7.6 Explore the relationship of life science to student interests; career opportunities, and historical contributions to science. 7.7 Construct and interpret cell models. 7.8 Investigate the structural and functional organization of living things, using microvisual and visual equipment to examine cells, itssue, mignar, and systems. 7.9 Determine the relationship between life needs and life functions (edit, tissue, mignar), and systems. 7.10 Recognize the basis for standard classification schemes by grouping plants and animals according to their (huractions) and basis of photosynthesis. 7.11 Perform experiments and interpret data illustrating the process of photosynthesis. 7.12 Describe the utilization of matter among organisms in organism. 7.13 Illustrate held flow of energy and matter among organisms in life community, using field and laboratory activities. 7.14 Investigate relationships among organisms in a biological community, using field and laboratory activities. 7.15 Investigate relationships among organisms in a biological community, using field and laboratory activities. 7.16 Compare and contrast biomes by examining relationships between abiotic and biotic factors. 7.17 Identify the daily, seasonal, and long-term changes that organisms. 7.18 Investigate the effects of heredity and environment upon eigenstras.	GRA	ADE 7	ulture nd to	culture						
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GRADE 7  DUTY AREA 2: CONSERVING NATURAL RESOURCES  SCIENCE STANDARDS OF LEARNING GRADE 7LIFE SCIENCE  7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7			_	_		_	_	_	_		
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SCIE	Y AREA 3: EXPLORING RESEARCH IN AGRICULTURE  NCE STANDARDS OF LEARNING	Explain the impact of agricultural research.	Identify agricultural research in animal science.	Identify agricultural research in plant science.	Identify research in agricultural engineering technology.	Explore career opportunities in agricultural research.				
GRA	DE 7LIFE SCIENCE	3.1	3.2	3.3	3.4	3.5				
7.1	Use the basic process skills and employ the integrated process skills as a basis for solving problems or answering questions about the environment.		•	•		•				
7.2	Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment.			•						
7.3	Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate increasingly complex science experiments.									
7.4	Demonstrate proper handling and care of organisms and show respect for life and property.									
7.5	Work independently and as a member of small and large groups within the classroom, in the laboratory, and during field experiences.	٠	٠	•	•	•				
7.6	Explore the relationship of life science to student interests, career opportunities, and historical contributions to science.		•	•	٠	٠				
7.7	Construct and interpret cell models.									
7.8	Investigate the structural and functional organization of living things, using microvisual and visual equipment to examine cells, tissues, organs, and systems.		•	•						
7.9	Determine the relationship between life needs and life functions.									
7.10	Recognize the basis for standard classification schemes by grouping plants and animals according to their characteristics and by designing and using a dichotomous (two-factor) key.									
7.11	Perform experiments and interpret data illustrating the process of photosynthesis.		٠	٠						
7.12	Describe the utilization of matter and energy within an organism.									
7.13	Illustrate the flow of energy and matter among organisms in food chains, webs, and pyramids.									
7.14	Investigate relationships that exist among members of a population, using field and laboratory activities.									
7.15	Investigate relationships among organisms in a biological community, using field and laboratory activities.									
7.16	Compare and contract biomes by examining relationships between abiotic and biotic factors.									
7.17	Identify the daily, seasonal, and long-term changes that occur in ecosystems, communities, populations, and organisms.									
7.18	Investigate the ways in which human impact upon the environment affects living things.		·							
7.19	Describe conservation as a necessary practice in human efforts to protect and use wisely the living resources of the earth.			·						
7.20	Examine the effects of heredity and environment upon organisms.							<u> </u>		
7.21	Describe the theory of evolution.									
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GRA	ADE 7		ess	olant	P					
וטם	TY AREA 4: EXPLORING PLANT SCIENCE	Determine economic importance of agricultural crops.	Describe the photosynthesis process of plants.	Identify and explain methods of plant reproduction.	e proper watering and of plants.	Identify and label plants.	Identify methods of planting or transplanting	use of hydroponics in ints.	Discuss new technology in plant science.	Explain career opportunities in plant science.
		Determine economic of agricultural crops	escribe the plants.	entify and productio	Demonstrate p fertilization of	entify and	entify me ansplantir	Explain the use growing plants.	Discuss new science.	plain care
	NCE STANDARDS OF LEARNING DE 7LIFE SCIENCE	4.1 of	4.2 D	4.3 ld	4.4 D	4.5 ld	4.6 ld	4.7 E	4.8 D	4.9 E)
7.1	Use the basic process skills and employ the integrated process skills as a basis for solving problems or answering questions about the environment.	٠	٠	•	•	•	•	٠	٠	·
7.2	Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment.		Ŀ	·	٠	٠	•	٠	٠	
7.3	Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate increasingly complex science experiments.		٠	•				•	•	
7.4	Demonstrate proper handling and care of organisms and show respect for life and property.			•	•	•	•			
7.5	Work independently and as a member of small and large groups within the classroom, in the laboratory, and during field experiences.	•	٠	•	•	•	٠	•	•	•
7.6	Explore the relationship of life science to student interests, career opportunities, and historical contributions to science.								•	•
7.7	Construct and interpret cell models.									
7.8	Investigate the structural and functional organization of living things, using microvisual and visual equipment to examine cells, tissues, organs, and systems.									
7.9	Determine the relationship between life needs and life functions.		•				•			
7.10	Recognize the basis for standard classification schemes by grouping plants and animals according to their characteristics and by designing and using a dichotomous (two-factor) key.									
7.11	Perform experiments and interpret data illustrating the process of photosynthesis.		•							
7.12	Describe the utilization of matter and energy within an organism.		•							
7.13	Illustrate the flow of energy and matter among organisms in food chains, webs, and pyramids.			•						
7.14	Investigate relationships that exist among members of a population, using field and laboratory activities.									
7.15	Investigate relationships among organisms in a biological community, using field and laboratory activities.							•		
7.16	Compare and contract biomes by examining relationships between abiotic and biotic factors.									
7.17	Identify the daily, seasonal, and long-term changes that occur in ecosystems, communities, populations, and organisms.						·			
7.18	Investigate the ways in which human impact upon the environment affects living things.									
7.19	Describe conservation as a necessary practice in human efforts to protect and use wisely the living resources of the earth.									
7.20	Examine the effects of heredity and environment upon organisms.									
7.21	Describe the theory of evolution.									



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GRA	ADE 7	nałs				ion				
דטם	TY AREA 5: EXPLORING ANIMAL SCIENCE	Determine the importance of animals to agriculture.	Explain the importance of animal evaluation.	identify key scientific terms used in the animal industry.	Explore the meat animal industry.	Explore the pleasure and companion animal industry	Discuss new technologies in animal science.	Discuss ethical concerns related to animal welfare.	Explore career opportunities in animal science	
		term agric	plain	ntify the a	plore	plore	cuss	cuss	plore	
	NCE STANDARDS OF LEARNING DE 7LIFE SCIENCE	5.1 De to	5.2 Ex ev	5.3 ide in	5.4 Ex	5.5 Ex	5.6 Die	5.7 Di	5.8 Ex	
7.1	Use the basic process skills and employ the integrated process skills as a basis for solving problems or answering questions about the environment.	•	•	•	•	•	•	•	•	
7.2	Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment.						•			
7.3	Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate increasingly complex science experiments.									
7.4	Demonstrate proper handling and care of organisms and show respect for life and property.			•	•	•				
7.5	Work independently and as a member of small and large groups within the classroom, in the laboratory, and during field experiences.	٠	٠	•	•	•	•	•	•	
7.6	Explore the relationship of life science to student interests, career opportunities, and historical contributions to science.							•	•	
7.7	Construct and interpret cell models.									
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7.13	Illustrate the flow of energy and matter among organisms in food chains, webs, and pyramids.									
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7.17	Identify the daily, seasonal, and long-term changes that occur in ecosystems, communities, populations, and organisms.									
7.18	Investigate the ways in which human impact upon the environment affects living things.							•		
7.19	Describe conservation as a necessary practice in human efforts to protect and use wisely the living resources of the earth.	·								
7.20	Examine the effects of heredity and environment upon organisms.		•							
7.21	Describe the theory of evolution.									



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GRA	ADE 7			ڼ		or				
	TY AREA 6: INTRODUCING BASIC LABORATORY SKILLS  NCE STANDARDS OF LEARNING	Apply safety practices.	identify types of metal.	Perform metal fabrication practices.	Read and interpret simple plans.	Identify and use basic hand tools for woodworking.	Maintain hand tools.	Select and use measuring devices.	Select and use wood fasteners.	Finish and preserve wood.
	DE 7LIFE SCIENCE	6.1	6.2	6.3	6.4	6.5	9.9	6.7	8.9	6.9
7.1	Use the basic process skills and employ the integrated process skills as a basis for solving problems or answering questions about the environment.									
7.2	Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment.	•	•	•	•	•	•	•	•	٠
7.3	Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate increasingly complex science experiments.									
7.4	Demonstrate proper handling and care of organisms and show respect for life and property.									
7.5	Work independently and as a member of small and large groups within the classroom, in the laboratory, and during field experiences.	•	•	٠	•	٠	•	٠	•	•
7.6	Explore the relationship of life science to student interests, career opportunities, and historical contributions to science.									
7.7	Construct and interpret cell models.									
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7.9	Determine the relationship between life needs and life functions.									
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7.15	Investigate relationships among organisms in a biological community, using field and laboratory activities.									
7.16	Compare and contract biomes by examining relationships between abiotic and biotic factors.									
7.17	Identify the daily, seasonal, and long-term changes that occur in ecosystems, communities, populations, and organisms.									
7.18	environment affects living things.									
7.19	Describe conservation as a necessary practice in human efforts to protect and use wisely the living resources of the earth.									
7.20	Examine the effects of heredity and environment upon organisms.									
7.21	Describe the theory of evolution.									



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GRADE 7	نو	eeds.	ي	skills.		ship.		
DUTY AREA 7: ENCOURAGING PERSONAL DEVELOPMENT	dentify effective leadership traits.	dentify personal development needs	Develop oral communication skills.	Develop written communication skills	Develop an understanding of FFA.	Develop opportunities for leadership	Develop social skills.	
	itify effe	ıtify per	elop ora	elop wr	elop an	elop op	elop soc	
SCIENCE STANDARDS OF LEARNING GRADE 7LIFE SCIENCE	7.1 Ider	7.2 Ider	7.3 Dev	7.4 Dev	7.5 Dev	7.6 Dev	7.7 Dev	:
7.1 Use the basic process skills and employ the integrated process skills as a basis for solving problems or answering questions about the environment.								
7.2 Demonstrate safe and appropriate use of tools and scientific equipment for making observations about the living environment.								
7.3 Exhibit evidence of personal growth and improvement by being able to select, plan, implement, and evaluate increasingly complex science experiments.								
7.4 Demonstrate proper handling and care of organisms and show respect for life and property.								
7.5 Work independently and as a member of small and large groups within the classroom, in the laboratory, and during field experiences.								
7.6 Explore the relationship of life science to student interests, career opportunities, and historical contributions to science.								
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7.8 Investigate the structural and functional organization of living things, using microvisual and visual equipment to examine cells, tissues, organs, and systems.								
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7.17 Identify the daily, seasonal, and long-term changes that occur in ecosystems, communities, populations, and organisms.								
7.18 Investigate the ways in which human impact upon the environment affects living things.								
7.19 Describe conservation as a necessary practice in human efforts to protect and use wisely the living resources of the earth.								
7.20 Examine the effects of heredity and environment upon organisms.							·	
7.21 Describe the theory of evolution.								



Matrices for Agriscience and Technology 8004 (Grade 8)



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	TY AREA 1: IDENTIFYING NEW TECHNOLOGIES IN AGRICULTURE/AGRISCIENCE	Examine the application of computers to agricultural management.	Explore new technologies in animal science.	Explore new technologies in plant science.	Explore new technologies in agricultural engineering .	Explore new technologies in environ- mental areas.	Explore new strategies in agricultural marketing.		
LANG GRA	GUAGE ARTS STANDARDS OF LEARNING DE 8	1.1 Exam to agi	T.Z Explore science	1.3 Explo science	1.4 Explo	1.5 Explo ment	1.6 Explo mark		
8.1	Participate in the oral reading and/or performance of dramatic materials.	•	•	•	•	•	•		
8.2	Adapt oral and written language to a particular audience, occasion, and purpose.	•	•	•	·	•	•		
8.3	Enlarge vocabulary by using context clues to acquire word meaning in reading passages of increasing difficulty.								
8.4	Read the newspaper for a variety of purposes.	•	•	•	•	•	•		
8.5	Discern the author's purposes.	•	•	•	•	•	•		
8.6	Record regularly experiences, thoughts, and feelings.								
8.7	Write short narrative fiction.								
8.8	Write coherent paragraphs using effective methods of arranging details.	•	<u>•</u>	•	•	•	•		
8.9	Write, revise, and proofread papers of more than one paragraph.	•	•	•	•	•	•		
8.10	Write business letters for various purposes.	•	·	•	ŀ	·	·		
8.11	Compare themes in adolescent literature with personal experiences.								
8.12	Understand the basic methods the author uses in creating characters.								
8.13	Complete forms and applications.								
8.14	Use appropriate pronouns and antecedents.		$oldsymbol{ol}}}}}}}}}}}}}}}}}}$		_	$oldsymbol{ol}}}}}}}}}}}}}}$			
8.15	Identify influences of the mass media on the individual and on society.	•				ŀ			



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GR.	ADE 8				ional					
υŪ	TY AREA 2: UNDERSTANDING INTERNATIONAL AGRICULTURE	Define exports.	Define imports.	Define <u>tariffs.</u>	Explain the relationship of international trade to Virginia agriculture.	Identify factors that affect trade agreements.	Explore careers in international agriculture.			
	GUAGE ARTS STANDARDS OF LEARNING	Defi	Defi	Defi	Expl	lden agre	Expl		İ	
GRA	NDE 8	2.1	2.2	2.3	2.4	2.5	2.6			
8.1	Participate in the oral reading and/or performance of dramatic materials.				•	•				
8.2	Adapt oral and written language to a particular audience, occasion, and purpose.									
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8.4	Read the newspaper for a variety of purposes.	•	•	•	•	•				
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8.13	Complete forms and applications.									
8.14	Use appropriate pronouns and antecedents.							コ		
8.15	Identify influences of the mass media on the individual and on society.					•				
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GRA	ADE 8						an		
	TY AREA 3: UNDERSTANDING AGRICULTURAL BUSINESSES  GUAGE ARTS STANDARDS OF LEARNING	Identify the role of agribusiness in agriculture.	Discuss free enterprise and the economy.	Define entrepreneur.	Recognize personal potential as an entrepreneur.	Identify career opportunities in agribusiness.	Describe the role and function of a gribusiness manager.		
GRA		3.1	3.2 [	3.3	3.4	3.5	3.6		
8.1	Participate in the oral reading and/or performance of dramatic materials.					•			
8.2	Adapt oral and written language to a particular audience, occasion, and purpose.					•			
8.3	Enlarge vocabulary by using context clues to acquire word meaning in reading passages of increasing difficulty.								
8.4	Read the newspaper for a variety of purposes.	•	•	•		•			
8.5	Discern the author's purposes.	•				•			
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8.15	Identify influences of the mass media on the individual and on society.								



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GRA	ADE 8	ŗ						
DU <sup>.</sup>	TY AREA 4: USING MICROCOMPUTERS IN AGRICULTURE	Identify components of a computer system.	Define computer terms.	Explain the proper use of diskettes.	Use word processing software.	Identify the uses of computers in agriculture.		
	GUAGE ARTS STANDARDS OF LEARNING	Identify system	Def	£X	Use	lder agri		
GRA	DE 8	4.1	4.2	4.3	4.4	4.5		
8.1	Participate in the oral reading and/or performance of dramatic materials.		•					
8.2	Adapt oral and written language to a particular audience, occasion, and purpose.							
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8.12	Understand the basic methods the author uses in creating characters.							
8.13	Complete forms and applications.							
8.14	Use appropriate pronouns and antecedents.							
8.15	Identify influences of the mass media on the individual and on society.					•		



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	DE 8  Y AREA 5: INTRODUCING SUPERVISED AGRICULTURAL EXPERIENCES	Define supervised agricultural experience program.	5.2 Identify the types of supervised agricultural experience programs.	Describe characteristics of a successful supervised agricultural experience program.	Select and plan individual supervised agricultural experience program.	Relate supervised agricultural experience programs.		
LAN GRA	GUAGE ARTS STANDARDS OF LEARNING DE 8	5.1 Define supe experience	5.2 Identify the agricultural	5.3 Describe chasus supervised a program.	5.4 Select and p agricultural	5.5 Relate supe programs to		
8.1	Participate in the oral reading and/or performance of dramatic materials.		ļ		}			
8.2	Adapt oral and written language to a particular audience, occasion, and purpose.							
8.3	Enlarge vocabulary by using context clues to acquire word meaning in reading passages of increasing difficulty.						i	
8.4	Read the newspaper for a variety of purposes.							
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8.10	Write business letters for various purposes.							
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8.13	Complete forms and applications.	•	•	•	ŀ	·		
8.14	Use appropriate pronouns and antecedents.							
8.15	Identify influences of the mass media on the individual and on society.							



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GRA	ADE 8		9	nt,	portable		ţ.	is					s for a	Ë
טס.	TY AREA 6:	USING HAND TOOLS AND AGRICULTURAL POWER EQUIPMENT	, demonstrate, and practice	Identify portable power equipment, hand tools, and accessories.	Demonstrate the proper use of po power equipment hand tools, and accessories.	Perform woodworking skills.	Explain basic principlas of electricity.	Perform basic electrical wiring skills.	Cut, shape, and drill metal.	Explain the arc welding process.	Operate arc welding equipment.	Perform measuring skills.	Read, interpret, and construct plans for mechanics project.	Explain operation principles of four stroke cycle engines.
1	GUAGE ARTS S' .DE 8	TANDARDS OF LEARNING	6.1 Explain, e safety.	6.2 Identif hand t	6.3 Demon power accessor	6.4 Perforr	6.5 Explair	6.6 Perforr	6.7 Cut, sh	6.8 Explain	6.9 Operat	6.10 Perforn	6.11 Read, ir mecha	6.12 Explain stroke
8.1	Participate in the dramatic material	oral reading and/or performance of s.												
8.2	Adapt oral and wr occasion, and pur	itten language to a particular audience, pose.												
8.3	Enlarge vocabular meaning in readin	y by using context clues to acquire word g passages of increasing difficulty.												
8.4	Read the newspap	per for a variety of purposes.												
8.5	Discern the autho	r's purposes.												
8.6	Record regularly e	experiences, thoughts, and feelings.												
8.7	Write short narrat	ive fiction.												
8.8	Write coherent pa arranging details.	ragraphs using effective methods of			-									
8.9	Write, revise, and paragraph.	proofread papers of more than one												
8.10	Write business let	ters for various purposes.												
8.11	Compare themes i experiences.	n adolescent literature with personal												
8.12	Understand the back	asic methods the author uses in creating												
8.13	Complete forms a	nd applications.				٠	•							
8.14	Use appropriate p	ronouns and antecedents.												
8.15	Identify influences	s of the mass media on the individual and												



וטם	TY AREA 7: DEVELOPING LEADERSHIP SKILLS  GUAGE ARTS STANDARDS OF LEARNING DE 8	7.1 Complete a personal development inventory.	7.2 Explain opportunities for leadership development through FFA.	7.3 Use democratic principles in conducting an effective meeting.	7.4 Develop an understanding of the FFA.			
8.1	Participate in the oral reading and/or performance of dramatic materials.	1.		•				
8.2	Adapt oral and written language to a particular audience, occasion, and purpose.	1.	•	•				
8.3	Enlarge vocabulary by using context clues to acquire word meaning in reading passages of increasing difficulty.		T					
8.4	Read the newspaper for a variety of purposes.	•						
8.5	Discern the author's purposes.							
8.6	Record regularly experiences, thoughts, and feelings.							
8.7	Write short narrative fiction.							
8.8	Write coherent paragraphs using effective methods of arranging details.							
8.9	Write, revise, and proofread papers of more than one paragraph.							
8.10	Write business letters for various purposes.							
8.11	Compare themes in adolescent literature with personal experiences.							
8.12	Understand the basic methods the author uses in creating characters.							
8.13	Complete forms and applications.	•	•	•	•			
8.14	Use appropriate pronouns and antecedents.							
8.15	Identify influences of the mass media on the individual and on society.							



Identify the components of a research project.  Practice safety procedures in performing experiments.  Perform an agricultural experiment.  Evaluate the results of an experiment.  Develop experimental reporting skills.  Develop experimental reporting skills.	
components of a reservine e results of an experime perimental reporting servine agricultural experime e results of an experime e results of an experimental reporting servine e results of a reporting servine e results of a reporting servine e results of a reporting servine e results of a reporting servine e results of a reporting servine e reporting se	
HANGUAGE ARTS STANDARDS OF LEARNING  LEAGUE AT THE LEARNING STANDARDS OF LEARNING STANDA	
GRADE 8 1. 8 8 8 8 2. 2 8 8 8 8 8 8 8 8 8 8 8 8 8	
8.1 Participate in the oral reading and/or performance of dramatic materials.	
8.2 Adapt oral and written language to a particular audience, occasion, and purpose.	
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8.13 Complete forms and applications.	
8.14 Use appropriate pronouns and antecedents.	
8.15 Identify influences of the mass media on the individual and on society.	



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GRÆ	ADE 8	ters	Fe Se		ontorar	ė	ural		
וטם	TY AREA 1: IDENTIFYING NEW TECHNOLOGIES IN AGRICULTURE/ AGRISCIENCE	Examine the application of computers to agricultural management.	Explore new technologies in anima science.	expiore new technologies in plant science.	Expiore new technologies in agricultural engineering .	Explore new technologies in environ- mental areas.	Explore new strategies in agricultural marketing.		
MAT GRA	H STANDARDS OF LEARNING DE 8	=	-		<b>#</b> :	ر. د	1.6		
8.1	Write the word name for a given whole number 10,000 or less.								
8.2	Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integral exponents or vice versa.								
8.3	Add, subtract, multiply, and divide whole numbers.								
8.4	Compare the numerical values of two numbers named by decimals using the symbols >, <, or =.								
8.5	Add, subtract, multiply, and divide with decimals.								
8.6	Given a number in fraction form, express it in decimal notation.								
8.7	Add, subtract, multiply, and divide with fractions and mixed numerals.								
8.8	Solve a proportion having one unknown term.								
8.9	Find a given percent of a number and what percent one number is of another.								
8.10	Solve simple linear equations having one variable.								
8.11	Measure length, mass, or liquid volume when given appropriate measuring devices.								
8.12	Compute with U. S. customary or metric units of measurement.								
8.13	Determine elapsed time when given two times within a 12-hour interval.								
8.14	Classify the member of a set of geometric figures as parallel lines, perpendicular lines, obtuse angles, right angles, or acute angles.	L							
8.15	Compute the perimeter of a polygon having no more than 10 sides.								
8.16	Compute the circumference or area of a circle, when given a radius or diameter and the appropriate formula.								
8,.17	Compute the area of triangles, squares, and rectangles.								
8.18	Find the volume of a right rectangular solid and a right cylinder.								
8.19	Answer certain questions about information displayed in line, bar, circle, and picture graphs.								
8.20	Read scales, charts, and tables.	•	•	•	•	•			
8.21	Read a simple scale drawing to find actual distances.								
8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.								
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GRADE 8  DUTY AREA 2: UNDERSTANDING INTERNATIONAL AGRICULTURE  MATH STANDARDS OF LEARNING GRADE 8  8.1 Write the word name for a given whole number 10,000 or less.  8.2 Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integer 12 or less, as an indicated product by using the definitions of positive integer 12 or less, as an indicated product by using the definitions of positive integer lex ponents of vice versa.  8.3 Add, subtract, multiply, and divide whole numbers.  8.4 Compare the numerical values of two numbers named by decimals using the symbols > x, or = = = = = = = = = = = = = = = = = =										
MATH STANDARDS OF LEARNING  GRADE 8  8.1 Write the word name for a given whole number 10,000 or less.  8.2 Represent an exponential expression, the base a positive integral exponents of vice versa.  8.3 Add, subtract, multiply, and divide whole numbers.  8.4 Compare the numerical values of two numbers named by decimals using the symbols >, < or = .  8.5 Add, subtract, multiply, and divide with decimals.  8.6 Given a number in fraction form, express it in decimal notation.  8.7 Add, subtract, multiply, and divide with fractions and mixed numerals.  8.8 Solve a proportion having one unknown term.  8.9 Find a given percent of a number and what percent one number is of another.  8.10 Solve simple linear equations having one variable.  8.11 Measure length, mass, or liquid volume when given appropriate measuring devices.  8.12 Compute with U. S. customary or metric units of measurement.  8.14 Classify the member of a set of geometric figures as parallel lines, perpendicular lines, obtuse angles, right angles, or acute angles.  8.15 Compute the perimeter of a polygon having no more than 10 sides.  8.16 Compute the perimeter of a polygon having no more than 10 sides.  8.17 Compute the area of triangles, squares, and rectangles.  8.18 Find the volume of a right rectangular solid and a right	GR.	ADE 8				tional				
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8.18 Find the volume of a right rectangular solid and a right	8.15	Compute the perimeter of a polygon having no more than 10 sides.								
8.18 Find the volume of a right rectangular solid and a right	8.16	Compute the circumference or area of a circle, when given a radius or diameter and the appropriate formula.								
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8.19 Answer certain questions about information displayed in line, bar, circle, and picture graphs.	8.19	Answer certain questions about information displayed in line, bar, circle, and picture graphs.								
8.20 Read scales, charts, and tables.	8.20	Read scales, charts, and tables.	•	•	•	•	•			
8.21 Read a simple scale drawing to find actual distances.	8.21	Read a simple scale drawing to find actual distances.								
8.22 Solve practical problems dealing with banking, consumer purchases, and personal earnings.	8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.								



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	Y AREA 3: UNDERSTANDING AGRICULTURAL BUSINESSES  H STANDARDS OF LEARNING	Identify the role of agribusiness in agriculture.	Discuss free enterprise and the economy.	Define entrepreneur.	Recognize personal potential as an entrepreneur.	Identify career opportunities in agribusiness.	Describe the role and function of a agribusiness manager.		
GRA	DE 8	3.1	3.2	3.3	3.4	3.5	3.6		
8.1	Write the word name for a given whole number 10,000 or less.	Ŀ							
8.2	Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integral exponents or vice versa.								
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8.18	Find the volume of a right rectangular solid and a right cylinder.								
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8.21	Read a simple scale drawing to find actual distances.								_
8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.			L		$oldsymbol{ol}}}}}}}}}}}}}}}}}}}$			
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DUT	Y AREA 4: USING MICROCOMPUTERS IN AGRICULTURE	Identify components of a computer system.	Define computer terms.	Explain the proper use of diskettes.	Use word processing software.	Identify the uses of computers in agriculture.				
		Identify c system.	ine co	lain th	word	ntify t icultui				
MAT GRAI	H STANDARDS OF LEARNING DE 8	4.1 Ide	4.2 Def	4.3 Exp	4.4 Use	4.5 Ide agr				
8.1	Write the word name for a given whole number 10,000 or less.									
8.2	Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integral exponents or vice versa.									
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8.21	Read a simple scale drawing to find actual distances.			_	1_			lacksquare	igspace	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.									



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GRA	DE 8			essful e	pası	perience 5.			
	Y AREA 5: INTRODUCING SUPERVISED AGRICULTURAL EXPERIENCES	Define supervised agricultural experience program.	Identify the types of supervised agricultural experience programs.	5.3 Describe characterístics of a successfu supervised agricultural experience program.	Select and plan individual supervised agricultural experience program.	Relate supervised agricultural experience programs.			
SCIE		5.1 De	5.2 Ide agr	5.3 De sur pro	5.4 Se agi	5.5 Re pro			
8.1	Use process skills as a basis for defining and solving problems and answering questions related to the study of the physical environment.								
8.2	Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small group activities.								
8.3	Make accurate and approximate measures, using a variety of instruments and employing direct and indirect methods.								
8.4	Graph and interpret data from experiments on interacting matter and energy.								
8.5	Identify characteristics and examples of various types of matter by their physical and chemical properties.								
8.6	Construct and explain various models that illustrate the structure of an atom.								
8.7	Use the periodic chart for obtaining information about elements and inferring information about elements and binary compounds.								
8.8	Describe physical, chemical, and nuclear changes, using the law of conservation of matter and energy.								
8.9	Investigate energy states and forms and describe how energy is transferred, transformed, and utilized.								
8.10	Investigate the basic characteristics of light and the technological applications.								
8.11	Investigate the characteristics and technological applications of electricity and magnetism.								
8.12	Investigate the basic characteristics and technological applications of mechanical waves.								
8.13	Investigate the scientific principles and the technological applications of work.		•						
8.14	Investigate the basic principles and technological applications of force and motion.								
8.15	Apply basic physical and chemical principles to describe changes occurring in common substances and to explain the operation of household devices.								
8.16	Evaluate past and future effects of science and technology on human beings and the environment.					_		L	
8.17	Utilize reasearch skills to investigate scientific, environmental, or individually selected problems.								
8.18	Explore the relationship of physical science to student interest and career opportunities.				ŀ				 



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GRA	DE 8			nt,	ortable		ity.	ills.					ins for	į
	Y AREA 6:	USING HAND TOOLS AND AGRICULTURAL POWER EQUIPMENT	Explain, demonstrate, and practice safety.	Identify portable power equipment, hand tools, and accessories.	Demonstrate the proper use of portable power equipment hand tools, and accessories.	Perform woodworking skills.	Explain basic principlas of electricity	Perform basic electrical wiring skills.	Cut, shape, and drill metal.	Explain the arc welding process.	Operate arc welding equipment.	6.10 Perform measuring skills.	Read, interpret, and construct plans for mechanics project.	Explain operation principles of four stroke cycle engines.
GRA	H STANDARDS DE 8	OF LEARNING	6.1	6.2	6.3	6.4	6.5	9.9	6.7	8.9	6.9	6.10	6.11	6.12
8.1	less.	me for a given whole number 10,000 or												
8.2	Represent an expo integer 12 or less, definitions of posi-	nential expression, the base a positive as an indicated product by using the tive integral exponents or vice versa.				ļ 								
8.3		tiply, and divide whole numbers.					•			,		•		
8.4	Compare the num- decimals using the	erical values of two numbers named by symbols >, <, or =.										•		
8.5	Add, subtract, mul	tiply, and divide with decimals.					·					•		
8.6	Given a number in notation.	fraction form, express it in decimal										٠		
8.7	Add, subtract, mu numerals.	tiply, and divide with fractions and mixed				•	ŀ	·				·		
8.8		having one unknown term.					ŀ	<u> </u>						Ш
8.9	Find a given perce number is of anot	nt of a number and what percent one her.										·		
8.10		r equations having one variable.				_	<u> </u>	<u> </u>	<u> </u>	<u>.</u>				Щ
8.11	appropriate meas					<u> </u>	_					•		
8.12	measurement.	5. customary or metric units of		_	_	ŀ	<u> •</u>	<u> •</u>		_		<u> </u>	<u> </u>	
8.13	Determine elapse hour interval.	d time when given two times within a 12-		$oldsymbol{ol}}}}}}}}}}}}}}$	<u> </u>	<u> </u>		_	<u> </u>	_		•	<u> </u>	
8.14	Classify the meml lines, perpendicul acute angles.	per of a set of geometric figures as parallel ar lines, obtuse angles, right angles, or			<u> </u>								<u> </u>	
8.15	Compute the peri sides.	meter of a polygon having no more than 10	<u>`</u>								<u> </u>	٠	<u> </u>	
8.16	Compute the circuradius or diamete	umference or area of a circle, when given a r and the appropriate formula.											$oxed{oxed}$	$\square$
8,.17		of triangles, squares, and rectangles.				•	•	•		_	_	ŀ	igspace	igstyle
8.18	Find the volume of cylinder.	of a right rectangular solid and a right		_						_	_	ŀ	lacksquare	
8.19	Answer certain q line, bar, circle, ar	uestions about information displayed in nd picture graphs.	$oldsymbol{oldsymbol{igl}}$				$\perp$		$oxed{oxed}$			_	$oldsymbol{\perp}$	
8.20	Read scales, char			$\perp$	igspace	<u> •</u>	·	•	_		_	ŀ	<u> </u>	
8.21		le drawing to find actual distances.	_	lacksquare		<u> </u>	<u> •</u>	<u> •</u>	ŀ		_	<u> •</u>	ŀ	
8.22	Solve practical pr purchases, and po	oblems dealing with banking, consumer ersonal earnings.												



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	DE 8	ent	rship	nducting	he FFA.				
	Y AREA 7: DEVELOPING LEADERSHIP SKILLS  H STANDARDS OF LEARNING	complete a personal development inventory.	Explain opportunities for leadership development through FFA.	Use democratic principles in conducting an effective meeting.	Develop an understanding of the FFA.				
GRAI	DE 8	:	7:7	7.3	7.4				
8.1	Write the word name for a given whole number 10,000 or less.		<u> </u>						
8.2	Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integral exponents or vice versa.								
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8.10	Solve simple linear equations having one variable.								
8.11	Measure length, mass, or liquid volume when given appropriate measuring devices.								
8.12	Compute with U. S. customary or metric units of measurement.								
8.13	Determine elapsed time when given two times within a 12-hour interval.								
8.14	Classify the member of a set of geometric figures as parallel lines, perpendicular lines, obtuse angles, right angles, or acute angles.								
8.15	Compute the perimeter of a polygon having no more than 10 sides.								
8.16	Compute the circumference or area of a circle, when given a radius or diameter and the appropriate formula.								
8,.17	Compute the area of triangles, squares, and rectangles.								
8.18	Find the volume of a right rectangular solid and a right cylinder.								
8.19	Answer certain questions about information displayed in line, bar, circle, and picture graphs.								
8.20	Read scales, charts, and tables.								
8.21	Read a simple scale drawing to find actual distances.					$oxed{\Box}$		·	
8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.								



GRA	DE 8	arch	in performing	j.	nent.	skills.		İ	
DUT	Y AREA 8: EXPERIMENTING IN AGRICULTURE	Identify the components of a research project.	Practice safety procedures in perf experiments.	Perform an agricultural experiment.	Evaluate the results of an experiment.	Develop experimental reporting skills.			
	H STANDARDS OF LEARNING					_			
GRA		8.1	8.2	8.3	8.4	8.5			
8.1	Write the word name for a given whole number 10,000 or less.			•	•				
8.2	Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integral exponents or vice versa.								
8.3	Add, subtract, multiply, and divide whole numbers.			•	•				
8.4	Compare the numerical values of two numbers named by decimals using the symbols >, <, or =.								
8.5	Add, subtract, multiply, and divide with decimals.								
8.6	Given a number in fraction form, express it in decimal notation.						į		
8.7	Add, subtract, multiply, and divide with fractions and mixed numerals.								
8.8	Solve a proportion having one unknown term.								
8.9	Find a given percent of a number and what percent one number is of another.			•	•				
8.10	Solve simple linear equations having one variable.								
8.11	Measure length, mass, or liquid volume when given appropriate measuring devices.			٠	٠				
8.12	Compute with U. S. customary or metric units of measurement.								
8.13	Determine elapsed time when given two times within a 12-hour interval.			•	•				
8.14	Classify the member of a set of geometric figures as parallel lines, perpendicular lines, obtuse angles, right angles, or acute angles.								
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8.18	Find the volume of a right rectangular solid and a right cylinder.								
8.19	Answer certain questions about information displayed in line, bar, circle, and picture graphs.								
8.20	Read scales, charts, and tables.	·	•	•	·	·			
8.21	Read a simple scale drawing to find actual distances.								
8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.							<u> </u>	
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GRA		outers	mal	E	icultural	/iron-	itural		
	Y AREA 1: IDENTIFYING NEW TECHNOLOGIES IN AGRICULTURE/AGRISCIENCE	Examine the application of computers to agricultural management.	Explore new technologies in animal science.	Explore new technologies in plant science.	Explore new technologies in agricultural engineering .	Explore new technologies in environ- mental areas.	Explore new strategies in agricultural marketing.		
GRAD	ICE STANDARDS OF LEARNING DE 8	 to	2.7 SS	35 25 36 37	1.4 E	7.5 m	1.6 E) m		
8.1	Use process skills as a basis for defining and solving problems and answering questions related to the study of the physical environment.					•			
	Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small group activities.	٠	•	•	٠	٠	•		
8.3	Make accurate and approximate measures, using a variety of instruments and employing direct and indirect methods.								
8.4	Graph and interpret data from experiments on interacting matter and energy.		•	•	•	•	•		
8.5	Identify characteristics and examples of various types of matter by their physical and chemical properties.								
8.6	Construct and explain various models that illustrate the structure of an atom.								
	Use the periodic chart for obtaining information about elements and inferring information about elements and binary compounds.								
8.8	Describe physical, chemical, and nuclear changes, using the law of conservation of matter and energy.								
8.9	Investigate energy states and forms and describe how energy is transferred, transformed, and utilized.								
8.10	Investigate the basic characteristics of light and the technological applications.								
8.11	Investigate the characteristics and technological applications of electricity and magnetism.	ŀ			L				
8.12	Investigate the basic characteristics and technological applications of mechanical waves.					•			
8.13	Investigate the scientific principles and the technological applications of work.								
8.14	Investigate the basic principles and technological applications of force and motion.								
8.15	Apply basic physical and chemical principles to describe changes occurring in common substances and to explain the operation of household devices.				·				
8.16	Evaluate past and future effects of science and technology on human beings and the environment.	·	·	•	ŀ	·	•		
8.17	Utilize reasearch skills to investigate scientific, environmental, or individually selected problems.					ŀ			
8.18	Explore the relationship of physical science to student interest and career opportunities.	•	•	Ŀ	<u>  • </u>	<u>  • </u>	<u> </u>		





GŖ.	ADE 8				tional				
וטם	TY AREA 2: UNDERSTANDING INTERNATIONAL AGRICULTURE	Define exports.	Define imports.	Define tariffs.	Explain the relationship of internationa trade to Virginia agriculture.	Identify factors that affect trade agreements.	Explore careers in international agriculture.		
SCIE GRA	NCE STANDARDS OF LEARNING DE 8	2.1 Defin	2.2 Defin	2.3 Defin	2.4 Expla trade	2.5 Ident agree	2.6 Explo agrice		
8.1	Use process skills as a basis for defining and solving problems and answering questions related to the study of the physical environment.				-				
8.2	Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small group activities.								
8.3	Make accurate and approximate measures, using a variety of instruments and employing direct and indirect methods.								
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8.5	Identify characteristics and examples of various types of matter by their physical and chemical properties.								
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8.17	Utilize reasearch skills to investigate scientific, environmental, or individually selected problems.				•				
8.18	Explore the relationship of physical science to student interest and career opportunities.				•		•		

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GRA	DE 8						an			
	Y AREA 3: UNDERSTANDING AGRICULTURAL BUSINESSES	identify the role of agribusiness	Discuss free enterprise and the economy.	Define entrepreneur.	Recognize personal potential as an entrepreneur.	Identify career opportunities in agribusiness.	Describe the role and function of agribusiness manager.			
i -	NCE STANDARDS OF LEARNING	1		e m			1		li	
GRA	DE 8	3.1	3.2	3.3	3.4	3.5	3.6			
8.1	Use process skills as a basis for defining and solving problems and answering questions related to the study of the physical environment.									
8.2	Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small group activities.									
8.3	Make accurate and approximate measures, using a variety of instruments and employing direct and indirect methods.	of								
8.4	Graph and interpret data from experiments on interacting matter and energy.									
8.5	Identify characteristics and examples of various types of matter by their physical and chemical properties.									
8.6	Construct and explain various models that illustrate the structure of an atom.			<u> </u>	_	<u> </u>				Ш
8.7	Use the periodic chart for obtaining information about elements and inferring information about elements and binary compounds.									
8.8	Describe physical, chemical, and nuclear changes, using the law of conservation of matter and energy.							$oldsymbol{ol}}}}}}}}}}}}}}}}}}$	<u> </u>	
8.9	Investigate energy states and forms and describe how energy is transferred, transformed, and utilized.			<u> </u>	<u> </u>			<u> </u>	<u> </u>	
8.10	Investigate the basic characteristics of light and the technological applications.		<u> </u>	<u> </u>	igspace		L	L	<u> </u>	
8.11	Investigate the characteristics and technological application of electricity and magnetism.	ns		_	_	_		<u> </u>	_	
8.12	Investigate the basic characteristics and technological applications of mechanical waves.	$\perp$	_	<u> </u>		_	_	igspace	<u> </u>	
8.13	applications of work.		$\perp$	_		_	_	<u> </u>	<u> </u>	
8.14	applications of force and motion.	$\perp$	$oldsymbol{ol}}}}}}}}}}}}}}}}}}$	$oldsymbol{\perp}$		_		<u> </u>	_	
8.15	changes occurring in common substances and to explain th operation of household devices.	_		_					_	
8.16	Evaluate past and future effects of science and technology on human beings and the environment.			$\perp$		_	_	igspace	_	
8.17	environmental, or individually selected problems.	$\perp$		1	<u> </u>	<u> </u>	$\downarrow$	$\downarrow$	-	<u> </u>
8.18	Explore the relationship of physical science to student interest and career opportunities.					<u> </u>				<u>L</u>



GRA	ADE 8	ŗ		٠.				
	NCE STANDARDS OF LEARNING DE 8	4.1 Identify components of a computer system.	4.2 Define computer terms.	4.3 Explain the proper use of diskettes.	4.4 Use word processing software.	4.5 Identify the uses of computers in agriculture.		
8.1	Use process skills as a basis for defining and solving problems and answering questions related to the study of	7	7	7	7	7		
<u> </u>	the physical environment.	<b>-</b>		_				
8.2	Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small group activities.		:	•				
8.3	Make accurate and approximate measures, using a variety of instruments and employing direct and indirect methods.							
8.4	Graph and interpret data from experiments on interacting matter and energy.							
8.5	Identify characteristics and examples of various types of matter by their physical and chemical properties.							
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8.12	Investigate the basic characteristics and technological applications of mechanical waves.							
8.13	Investigate the scientific principles and the technological applications of work.							
8.14	Investigate the basic principles and technological applications of force and motion.							
8.15	Apply basic physical and chemical principles to describe changes occurring in common substances and to explain the operation of household devices.						:	
8.16	Evaluate past and future effects of science and technology on human beings and the environment.					•		
8.17	Utilize reasearch skills to investigate scientific, environmental, or individually selected problems.							
8.18	Explore the relationship of physical science to student interest and career opportunities.							



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GRA	DE 8			ssful	ged	erienc				ļ
DUT	Y AREA 5: INTRODUCING SUPERVISED AGRICULTURAL EXPERIENCES	5.1 Define supervised agricultural experience program.	rthe types of supervised ural experience programs.	Describe characterístics of a successful supervised agricultural experience program.	Select and plan individual supervised agricultural experience program.	5.5 Relate supervised agricultural experience programs to FFA award programs.				
MAT GRAI	H STANDARDS OF LEARNING DE 8	5.1 Define experie	5.2 Identify the t agricultural e	5.3 Describ supervi prograr	5.4 Select a agricult	5.5 Relate prograr				
8.1	Write the word name for a given whole number 10,000 or less.									
8.2	Represent an exponential expression, the base a positive integer 12 or less, as an indicated product by using the definitions of positive integral exponents or vice versa.									
8.3	Add, subtract, multiply, and divide whole numbers.			•	•					
8.4	Compare the numerical values of two numbers named by decimals using the symbols >, <, or =.									
8.5	Add, subtract, multiply, and divide with decimals.			•	•					
8.6	Given a number in fraction form, express it in decimal notation.			•	•					
8.7	Add, subtract, multiply, and divide with fractions and mixed numerals.									
8.8	Solve a proportion having one unknown term.									
8.9	Find a given percent of a number and what percent one number is of another.				_					
8.10	Solve simple linear equations having one variable.						<u> </u>		$oldsymbol{ol}}}}}}}}}}}}}}}}}}$	
8.11	Measure length, mass, or liquid volume when given appropriate measuring devices.									
8.12	Compute with U. S. customary or metric units of measurement.									
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8.16	Compute the circumference or area of a circle, when given a radius or diameter and the appropriate formula.								<u> </u>	
8,.17	Compute the area of triangles, squares, and rectangles.									
8.18	Find the volume of a right rectangular solid and a right cylinder.							_	$oldsymbol{\perp}$	_
8.19	Answer certain questions about information displayed in line, bar, circle, and picture graphs.							$\perp$	↓_	
8.20	Read scales, charts, and tables.			·	1.			$\perp$	igspace	1_
8.21	Read a simple scale drawing to find actual distances.	1	$oldsymbol{\perp}$		$\downarrow$		$\perp$	_	$\bot$	_
8.22	Solve practical problems dealing with banking, consumer purchases, and personal earnings.	Ŀ								



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GRAI	DE 8		e.	nt,	portable and		ity.	skills.					plans for	- 5
	Y AREA 6:	USING HAND TOOLS AND AGRICULTURAL POWER EQUIPMENT	Explain, demonstrate, and practice safety.	Identify portable power equipment, hand tools, and accessories.	trate the proper use of quipment hand tools, a ies.	Perform woodworking skills.	Explain basic principlas of electricity.	Perform basic electrical wiring ski	Cut, shape, and drill metal.	Explain the arc welding process.	Operate arc welding equipment.	Perform measuring skills.	Read, interpret, and construct pla mechanics project.	Explain operation principles of four stroke cycle engines.
GRAD		JO LEARNING	1.9	6.2	6.3	6.4	6.5	9.9	6.7	8.9	6.9	6.10	6.11	6.12
8.1 L	Use process skills a problems and ansi the physical enviro	as a basis for defining and solving wering questions related to the study of onment.				-	•							
8.2	Demonstrate appr techniques and eq activities.	opriate and safe use of laboratory uipment in individual and small group	•	•	•	•	•	•	•	•	•	•	•	•
8.3	Make accurate and e	d approximate measures, using a variety of mploying direct and indirect methods.	f		•	•	•	•				•	•	
8.4	Graph and interpr	et data from experiments on interacting												
8.5	Identify character matter by their ph	istics and examples of various types of ysical and chemical properties.												
8.6	Construct and exp	lain various models that illustrate the om.												
8.7	Use the periodic cl elements and infe binary compound	hart for obtaining information about rring information about elements and s.												
8.8	Describe physical, law of conservation	chemical, and nuclear changes, using the on of matter and energy.					•	•						
8.9	Investigate energ energy is transfer	y states and forms and describe how red, transformed, and utilized.						•						
8.10	Investigate the ba technological app	sic characteristics of light and the lications.												
8.11	Investigate the ch of electricity and r	aracteristics and technological application magnetism.	5				•	•						
8.12	Investigate the ba applications of me	asic characteristics and technological echanical waves.												
8.13	Investigate the sc applications of wo	ientific principles and the technological ork.				•	•	·						
8.14	Investigate the ba applications of fo	asic principles and technological rce and motion.												·
1	Apply basic physic changes occurring operation of hous	cal and chemical principles to describe g in common substances and to explain the ehold devices.												
8.16	Evaluate past and on human beings	I future effects of science and technology and the environment.												$oldsymbol{ol}}}}}}}}}}}}}}}}}}$
8.17	Utilize reasearch environmental, o	skills to investigate scientific, r individually selected problems.												$oxed{oxed}$
8.18	Explore the relati	onship of physical science to student er opportunities.												



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	DE 8  Y AREA 7: DEVELOPING LEADERSHIP SKILLS	Complete a personal development inventory.	Explain opportunities for leadership development through FFA.	Use democratic principles in conducting an effective meeting.	Develop an understanding of the FFA.					
SCIE		_	ł	3 Use demo an effecti	.4 Develop a					
GIV.		ايز	7.2		7					
8.1	Use process skills as a basis for defining and solving problems and answering questions related to the study of the physical environment.									
8.2	Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small group activities.									
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8.17	environmental, or individually selected problems.					$oldsymbol{ol}}}}}}}}}}}}}}}}}}$			_	<u> </u>
8.18	Explore the relationship of physical science to student interest and career opportunities.									<u> </u>



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GRADE 8	rming	sk iils.
DUTY AREA 8: EXPERIMENTING IN AGRICULTURE  SCIENCE STANDARDS OF LEARNING GRADE 8	<ul> <li>8.1 Identify the components of a research project</li> <li>8.2 Practice safety procedures in performing experiments</li> <li>8.3 Perform an agricultural experiment.</li> <li>8.4 Evaluate the results of an experiment.</li> </ul>	8.5 Develop experimental reporting sk
8.1 Use process skills as a basis for defining and solving problems and answering questions related to the stuthe physical environment.	y of • • • •	•
8.2 Demonstrate appropriate and safe use of laboratory techniques and equipment in individual and small gractivities.	ıp • •	
8.3 Make accurate and approximate measures, using a vinstruments and employing direct and indirect meth	riety of s. • •	•
8.4 Graph and interpret data from experiments on intermatter and energy.	ting	•
8.5 Identify characteristics and examples of various type matter by their physical and chemical properties.	of •	
8.6 Construct and explain various models that illustrate structure of an atom.	e	
8.7 Use the periodic chart for obtaining information abo elements and inferring information about elements binary compounds.	d	
8.8 Describe physical, chemical, and nuclear changes, us law of conservation of matter and energy.	g the	
8.9 Investigate energy states and forms and describe ho energy is transferred, transformed, and utilized.		
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8.11 Investigate the characteristics and technological app of electricity and magnetism.	ations	
8.12 Investigate the basic characteristics and technologic applications of mechanical waves.		
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8.17 Utilize reasearch skills to investigate scientific, environmental, or individually selected problems.		
8.18 Explore the relationship of physical science to stude interest and career opportunities.	•	



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Plant Reproduction, Exploring the World of Plants and Soils.
Plant Growth Factors, Exploring the World of Plants and Soils.
Your Surroundings--Conservation I.

Virginia Water Resources Research Center. Blacksburg, Virginia: Virginia Polytechnic Institute and State University.

Be Water Wise, 1988. (student and teacher publication) Sandcastle Moats, and Petunia Bed Holes, 1988. (a book about groundwater) Threats to Virginia's Goundwater, 1988.

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- Wildlife Conservation in Virginia Richmond, Virginia: Virginia Department of Game and Inland Fisheries, 1985.
- Wildlife Management Techniques Manual. 4th ed. Washington, D.C.: The Wildlife Society, 1980.



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